

# Audubon Magazine

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY



DO WE WANT TO SAVE THE WHOOPING CRANES ? page 122



**HAROLD PETERS**, the National Audubon Society's Research Biologist in Atlanta, Georgia, is presently investigating effects of pesticides on wildlife. His past experience includes over 30 years of government service, most of it with the U.S. Fish and Wildlife Service. Mr. Peters held the position of Atlantic Flyway Biologist, conducting waterfowl investigations from the Canadian Arctic to the West Indies for 11 years. He directed studies in 47 states while investigating mourning doves for the Fish and Wildlife Service. He is senior author of "Birds of Newfoundland", the first complete book on the birds of this Canadian province, and enjoys the honor of having a peninsula in Frobisher Bay, Baffin Bay, Baffin Island, named after him.

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# Audubon magazine

Volume 62, Number 3, Formerly BIRD-LORE

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY

*A bimonthly devoted to the conservation of wildlife, plants, soil, and water*

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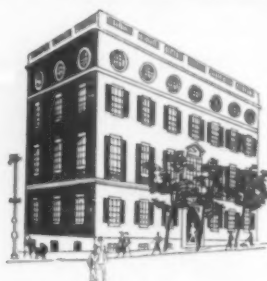
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## Letters

### Pileated Woodpeckers and Thanks to Our Readers

In the January-February 1959 issue of *Audubon Magazine*, you very kindly published my letter requesting information from readers about pileated woodpeckers visiting feeding stations, so that I might gain some idea of how common an occurrence this is and what foods are being taken.

*Audubon Magazine* readers are a cooperative group! You will be interested to know, I am sure, that I had 29 responses, divided as follows among the states: Minnesota 8, Wisconsin 6, New Jersey 3, Ohio 2, Alabama 2, New York 2, Maryland 1, Pennsylvania 1, Indiana 1, Arkansas 1, Tennessee 1, and Ontario, Canada 1. Many of the letters contained interesting observations on the behavior of pileateds and this will all be of help to me in writing up my conclusions.

One or two of the letters contained "negative" information—equally valuable. These stated that although pileateds came close to feeders, and although other types of woodpeckers ate suet in sight of the pileated, the latter had never been seen to sample it.

In addition to these 29 letters, I have had other letters in the past eight or ten years, in answer to appeals in other publications, plus the earlier ones in *Audubon Magazine* which inspired my inquiry in your columns.

May I thank you again for the assistance you have given me in my studies of this magnificent bird.

MRS. J. SOUTHGATE Y. HOYT  
Etna, New York

### Hummingbird in a Spider's Web

Memorable experiences of a lifetime sometimes happen unexpectedly. It was a sparkling spring morning when our neighbor called to me about a bird in her yard, and asked me to help. I dashed into her garden and saw a male Anna's hummingbird enmeshed in a spider's web that hung in the entrance to her lath-house. Evidently he had been hunting for webs with which to bind his and his lady love's nest and had become the victim instead.

I gently lifted the bird out of the web, expecting him to take wing immediately, but found that the spider web had encased his whole body. He confidently perched himself on my left forefinger as I slowly walked back to our house, all the while marvelling at this wee vibrant bit of life that was in my



care. In the bright sunshine, his feathers flashed and glowed in rose, metallic-green, and bronze, despite the enveloping sticky web.

I carried him into our bathroom and there tried mopping off the spider web with cotton soaked in witch hazel, without effect. I tried alcohol next, without success, and I was despairing until I thought of the brand new cosmetic I had purchased. With my free hand, I uncorked the bottle and soaked a wad of cotton in the fragrant liquid. The web slowly softened and some of it came off on the cotton. I mopped my diminutive friend several times with fresh applications until no trace of the cobweb remained. Then, with the hummer still clinging to my finger, I carried him into our patio where he preened his wet feathers with his long beak. When thoroughly dry, he fanned his wings, gave a shrill squeak and darted away.

Mrs. M. H. JOHNSON  
San Jose, California

#### COMMENT

Mrs. Johnson's interesting experience showed her ingenuity in helping to clean the Anna's hummingbird of the spider web before giving the bird its freedom. It would have added to our knowledge, too, had someone noted what kind of spider had spun the web strong enough to enmesh the hummingbird.—The Editor

#### Red-breasted Nuthatch and Fireflies

Your November-December 1959 issue carried an article by A. L. Rand on the pitch-plastering of the red-breasted nuthatch.

Years ago, I spent a summer at the biological station of the University of Montana. We watched one well-plastered nuthatch nest for many evenings. The male bird always brought live fireflies and carefully fastened them in the pitch where they made a lovely glow as they struggled unsuccessfully to free themselves. The female would peer out but we were never able to determine whether they were brought for food or adornment.

Is this a common procedure? We never noticed insects other than fireflies being used.

We greatly enjoy *Audubon Magazine*.  
Mrs. ELIZABETH H. SMITH  
Paradise, California

#### COMMENT

Mrs. Smith's experience was most unusual. We have never heard of a red-breasted nuthatch behaving in this way, nor read of it in the ornithological literature. Perhaps some of our readers may have had a similar experience.—The Editor

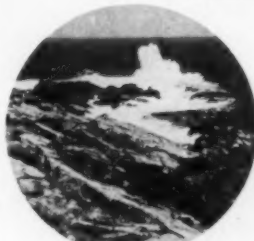
#### Albino Evening Grosbeak in New York

I am submitting some information and markings about a female evening grosbeak which I believe is a white mutant or albino. I have called it a female because the markings most closely resemble that of the female, particularly the two dark stripes on the neck. I do not have a telephoto lens for my camera thus I could not get a good color picture of her. However, I have observed her three times at close range with good field glasses and I have tried to record her colors and markings carefully. This bird has been observed by several

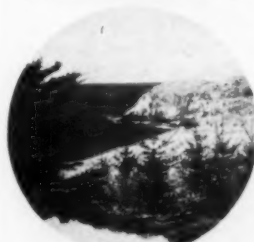
people in our neighborhood and others in the village of Potsdam. As a matter of fact, several people had told me that they had seen a "blond" grosbeak and I was on the lookout for her when she appeared at our feeding station. She seems to be a regular member of the flock—that is, I have seen her feeding only when there have been quite a few other grosbeaks feeding. She is easily distinguishable from the other grosbeaks in color, but is the same size and is equally aggressive when feeding.

I am submitting this report to you because I do not know if there have been any other reports of a "white"

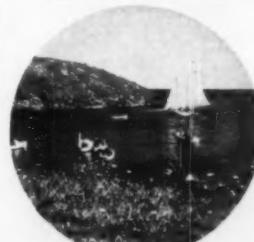
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grosbeak. This is certainly a rarity. I have been watching grosbeak flocks for five years and this is the first that I have seen or heard of. I am not sure whether one would class this bird as a mutant or an albino (a recessive selection that may appear from time to time). The wing and tail areas that would normally be black are either purple-brown or white. However, the eyes seem to be dark.

JOHN R. KELLER

Potsdam, New York

### Albino Evening Grosbeak in Virginia

This winter we have had an albino evening grosbeak in Front Royal. We saw it in late December at our feeders and it has again been reported about one-half mile away at a friend's feeder. I would be interested to know if you or others who read *Audubon Magazine* have seen any albino grosbeaks. There are about 45 regular, or "standard model," grosbeaks at our feeder each morning.

RICHARD R. ALMY

Front Royal, Virginia

### Gray Squirrels that Eat Suet

An editorial footnote to "Canteen for Forest Dwellers," by Helen Hoover, in the March-April 1960 issue says, in part, "gray squirrels seldom if ever eat suet." Keeping gray squirrels out of suet feeders is one of our major problems. And I am led to believe it is as much so in other sections of New Jersey.

Except when the snow is deep and soft, we have a regular guest list of about six gray squirrels. The number increases to about ten in early spring. In three hanging baskets made of her-

ringbone sheet metal grill (used for supporting plaster on walls) we feed about three pounds of suet a week during the winter and possibly half this through the summer. Both winter and summer the gray squirrels consume most of this suet. (With more open-meshed baskets I had used previously they cleaned out nearly all of it!)

One lovely, big gray may hang on a suet basket head-down scratching out suet for an hour at a time. Usually one or two less aggressive hangers-on are busy below retrieving bits that fall to the ground. And sometimes a hairy woodpecker waits its turn patiently on a nearby limb.

While we are near a rather heavily-wooded section where gray squirrels are abundant they do not seem to eat the suet for lack of something better. It is not unusual to see them working on seeds, and various grains lay undisturbed on the ground nearby.

RALPH K. POTTER

Morristown, N. J.

### COMMENT

Mr. Potter's experiences with gray squirrels emphasizes something that most of us learn eventually—that one should never generalize about the habits or behavior of wild animals. In some 25 or 30 years of backyard feeding and attracting birds and other animals, in many places in the Northeast, we have never had a problem of gray squirrels coming to suet feeders. However, when we put peanut butter in the suet feeding sticks, the squirrels not only ate it, but gnawed away a great deal of the wood in their avidness to eat the wood soaked with peanut oil.—The Editor

### Fate of an Albino Starling

Pete was given to me June 14, 1958. He (?) was from a nest of four young, and was about two weeks old, milk-colored, with pink eyes, yellow bill, and white legs and feet. My first thought was that I wouldn't have trouble feeding him, but I found him one of the most particular to please. He soon took food from my fingers, and ate bread and milk, and cube steak, but just about everything else I tried he would take, then toss away. I kept food in his cage but it took two weeks to teach him to eat by himself.

He liked to bathe, but I couldn't have him free when I was doing dishes for he would get into the dishpan. When a nice day came and weather reports predicted good days ahead, he was banded and released. We didn't see him after the first day.

On July 11 he appeared at a bird feeder in Groton, Vermont. They made a movie of him, and also some snapshots. On July 12, he went to another

place where he was taken in and caged. A few days later, he died. They reported him as a white robin. I believe he would have survived had he been left on his own.

ALICE McALISTER

Canaan, New Hampshire



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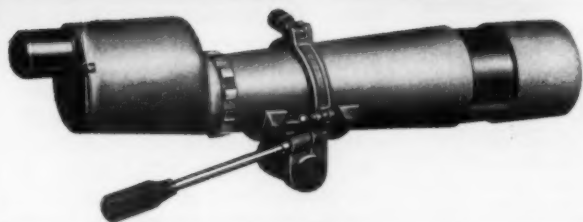
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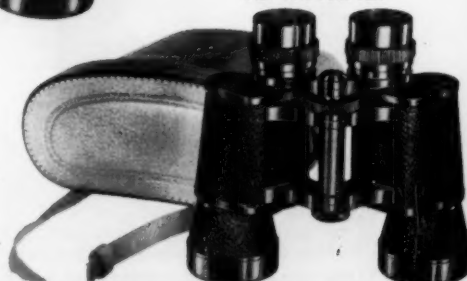


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# Roger Peterson's BIRD'S

## The Era of Ludlow Griscom

A year has gone by since Ludlow Griscom saw his last warbler migration from his garden in Cambridge. At the end of May, about the time the last blackpolls were going through he was laid to rest in Mount Auburn, the cemetery in Cambridge where he had spent so many hundreds of May mornings during the last 30 years.\*

Ludlow Griscom was the first ornithologist I ever met, when as a lad of 17 I came to New York in 1925 to attend my first meeting of the A.O.U. (American Ornithologists Union). I arrived a day early, and to get my membership sponsored I climbed the stairs to the bird department in the American Museum where I found a dark-haired young man of 35 who signed my application. The young man was Ludlow Griscom, and I was to see him in action the following Saturday when he led the field trip to Long Beach on Long Island. On that day 13 new birds went down on my life list, and I particularly recall the Brunnich's murre that flew over near the inlet. It was the first record, Griscom stated, since the days when Eugene Bicknell worked the beach with his hand-held telescope.

Returning to New York a year later to take up my art education, I often saw Ludlow Griscom at the bimonthly meetings of the Linnaean Society which he dominated. He was always a good show and just a bit austere in keeping a group of young upstarts in line, a half-dozen eager-beavers known as the Bronx County Bird Club (Joseph Hickey and Allan Cruickshank were charter members). Although he had a particular fondness for these boys, his cross-examinations were ruthless when they reported three-toed woodpeckers and other unlikely finds. This was good training and only a few years later I witnessed both Joe and Cruicky giving similar merciless grillings to other upcoming youngsters at Linnaean meetings.

I became the first non-Bronx member of the very select Bronx County

Bird Club, mostly because I hung around so much. Griscom was our God and his "Birds of the New York City Region" our Bible. Every one of us could quote chapter and verse. We used his terminology and even his inflection when we pronounced something as "unprecedented" or "a common summer resident." The leader of our little group, Jack Kuerzi, even parted his hair in the middle in the approved Griscom style.

And it was quite logical that we should choose Griscom as our model for he represented the new field ornithology. He bridged the gap between the shotgun ornithologist of the old school and the modern field biologist. He recalled: "When a veteran ornithologist of an older generation wished to add birds to his collection, he drove out on a lovely May day from New York City to Van Cortlandt Park and was perfectly free to shoot as many warblers in the morning as he could skin in the afternoon. When visiting a friend in New Haven, Connecticut, and wanting to add a warbling vireo to his collection, he was taken by the friend on a Sunday morning to the place of a well-known lady of New Haven, in whose shade trees a pair of warbling vireos were nesting. By first ringing the doorbell, hat in hand, and courteously requesting permission, it was entirely possible to blaze away and shoot the warbling vireo out of the treetop onto the lawn in the City of New Haven on a spring Sunday morning." In fact in those days the record would hardly have been valid without the dead specimen.

When Ludlow Griscom was a young man developing his field glass technique he was challenged by one of these old boys who made all his own identifications through the sights of a shotgun. Griscom pointed out a female Cape May warbler in the tip of a sycamore. The old boy blazed away. He picked up the bird. It was a female Cape May. After several repeat performances he became convinced that Ludlow knew whereof he spoke.

Griscom became the high priest of the new cult of split-second field

\* See "Ludlow Griscom—The Man," by John H. Baker, *Audubon Magazine*, September-October 1959 issue.—The Editor



## EYE VIEW

identification and the Bronx boys were his most apt pupils. My "Field Guides" owe much to Ludlow; certainly the philosophy and the fine points of field recognition I learned from him, although the visual presentation, particularly the use of the little arrows and the working out of the comparative patterns, was a contribution of my own. We know the technique so well today that it is taken for granted, but I find that wherever I go throughout the 50 states the sharpest field experts can usually be traced either directly to Griscom's influence or indirectly, through some eastern club in New York, Boston, Philadelphia, or Washington where his influence was felt most strongly. He was indeed the dean of field ornithologists.

In 1927 Ludlow Griscom left the American Museum for a position on the scientific and administrative staff of the Museum of Comparative Zoology in Cambridge, Massachusetts,

and it was not until I went to Boston in 1931 to teach school that our paths again crossed. It was there that we got on a first-name basis and became close friends.

He introduced his high pressure methods to the leisurely bird watchers of Massachusetts who soon rivaled the New Yorkers in their skill. Notwithstanding that he had once stated that it was a physical impossibility to see 250 species in a single year in the New York City area or anywhere else in the Northeast, he eventually was attaining totals of more than 300 every year around Boston. He developed a statewide grapevine the like of which has not been equalled anywhere else

*Continued on page 131*

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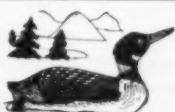
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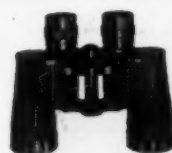
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# Nature and Man: The Two Faces of Management

By Daniel McKinley

THE dourest prophet has at least a despairing hope that human nature can be changed enough to make man's life compatible with the order in nature. Something of the sort, without a resort to quackeries, has to be done.

The common question goes: Where is science taking us? Can it be that "science" is taking us, as the question implies, to some end that we have not elected? The two most frequent replies are not reassuring—the hell of nuclear war; or the dubious utopia of a man-made world powered by atomic energy.

Today's shoddy promise of utopia is not a pretty one, even if it works; and we do not yet know what to do with the leftovers from peaceful atomic fission. Inevitably we shall see nature molded more and more by the cankering stresses of overpopulation and undreamed-of increases in material demands. Individual freedom will perish in the totalitarianism necessary for the running of such a factory of human protoplasm.

I think it conceivable there is no solution to the looming catastrophe of too many people in so frail a world. Like a dragon's brood we threaten our world with hydrogen bombs, atomic fall-out, earth movers, and simple over-use by billions of men whose blindness prevents them from recognizing the earth's fragility. Municipal airports, superhighways, and suburbias weigh heavily upon land that ought to lie exposed to rain and light and life. Earthly life may soon consist only of that in managed man and his tanks of algae stewing in the solar gardens of the future. Farming as a way of life, wildernesses, arctic tundra, national parks, wild animals, and plants—all

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of these things may be dreams before we know it.

Maybe, as I say, we cannot do anything. But how justified is this view for the managers and technicians who *do* alter the world? Are we an ignorant society so mobilized by taboos that we act, but cannot guide our actions? What do we know about the tangled web of effects woven by the changes we initiate? So far, perhaps because of "science," it has not mattered much to us. We are utopia-bound. What are esthetics and ethics, or even the practicalities of soil poisoning, pollution, and the extinction of species? But the web tightens. Bacteria, green plants, and molds are among mankind's greatest friends. They are the result of an almost eternally long balance in nature that man can never duplicate, and one in which he was never remotely involved until quite recently. Yet aside from whooping cranes, platypuses, and moccasin flowers, all be-

neath contempt because they have no market value, we may also be endangering the willingness of just such impersonal facets of life as chlorophyll, penicillin, and nitrification to support us. We know little enough about the kind of world required for *their* fruitfulness. Man, an ignorant parasite, sucks up their bounty, and without them he is lost.

I am the sheepish owner of a hope that a world fit for unmanaged men may yet come out of it all. It is an agonizing hope. Coupled with that hope is the belief that in completely managed landscapes only a managed man can fit without going mad. For, as much as politics, religions, schools, and automobiles, freedom consists of spaciousness, natural beauty, and complexity, and the familiar challenge of the unknown. If we lose these things, how can they be legislated back into a world spilling over with people?

Yet, suburban developments, tomorrow's slums, sprawl listlessly over once lovely hills. A living topsoil is bulldozed away and its basement cemented over. People spew outward from decrepit metropolises, into which are driven ever more displaced people from the farm. Gadget-filled lives have been invested with so false a halo that one wonders if the gadgets are not the proffered carrot that precedes the slipping on of the halter.

Where does the emphasis on material social creations put a naturalist? This skeptic yet remembers country summers in Missouri: grasshopper symphonies not confined to a Saturday afternoon. Although strayed from Ozark hillsides of oak and hickory, he yearns not for lost youth but for the lonely call of a

*Turn to next page*

#### Editor's Note

We believe that our readers will be stimulated, as we were, by Daniel McKinley's provocative critique of our times. We know Dan McKinley as a biologist who can speak with Thoreau-like sharpness, and though we may not always agree with him in what he has to say, he has presented for us a discussion of three themes of particular interest to many of us—man and nature in our technological society, the practice of wildlife management, and the development of naturalists.

Dan McKinley is a teacher of biology at Salem College, Winston-Salem, North Carolina. In the summer of 1959, he was on the staff of the Audubon Camp of Connecticut, and for two years was a Teaching Fellow in biology at Bowdoin College, Brunswick, Maine. In a recent letter to us, he wrote:

"I grew up in the Ozark area of southern Missouri, where I learned certain Thoreauvian truths about dolomite glades, sandstone barrens, and other 'wastelands.' They were places of great charm and interest . . . not real wildernesses but without their life would have been different."

Dan McKinley has worked as a naturalist in Missouri state parks, studied wildlife management under William H. Elder, a disciple of Aldo Leopold at the University of Missouri, and has worked on ecological problems in Alaska.



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blue jay in the emptiness of an oak-forest in midwinter; for katydids rasping out their lives in gleaming summer evenings; for the cyclic drone of a cicada in a locust-year; for nighthawks booming their own delights over a limestone glade; or, above the comforts of fellow creatures, sunset silhouetting neither skyscraper, power pole, nor jet trail.

What I describe is not the antithesis of human society, but its proper setting.

I am told to ogle the progress of mankind! Join. . . ! Socialize. . . ! Have faith! Faith in what? Faith in Man—Man possessed of the Midas touch; Man the remover—not the maker—of mountains. Man so in love with his own image that he cannot see or reflect or weigh; so open to the faults in his faiths and practices that he now endangers the future of his species. Will he—can he—continue to love his fellow men when men fall over each other's feet, as will probably happen unless some infinitely terrible disaster prevents that horrible end?

Wisdom, management, education are the echoes I hear, encapsulated in American thinking in the word "conservation." Conservation is at best a focal point of deep and creative thought; at worst, a brain-stopping little slogan beginning and ending with "Wise Use." Smog, alpine meadows, moorland sheep, Chesapeake oysters, almost everything you can name, may any day begin to poison us with radioactivity very appreciably more than at present; soils whose fire ants have been "eradicated" may soon become our savings account with death; the whole African continent may lose its elemental charms to make way for a teeming society that will in its turn starve—the ultimate in drab memorials to our political vacuity. Are we so very wise?

So we manage. We become professional, steeped in techniques that override our philosophies, silenced by government subsidy, smug from the conventionally measurable "services" we provide the public. In wildlife management, for instance, any fool who can legally carry a gun can now pay to have a coturnix quail turned loose in front of his gun, a sick trout dangled from his pre-baited hook, or for a shot at a goose from a blind that he did not

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build within the territory that was recently "sanctuary" to the goose. This is no nightmare of our overpopulated future! This is management—but considerably strayed from the philosophy of its great founders.

In a day when American population pressures are still modest enough, we find game management plying the techniques rather wildly in its efforts to provide more heads of shootable game for the increasing baggers of game. This usually means chopping down the beech trees, shooting off the horned owls, mountain lions, and wolves, and introducing exotic animals to fill nooks where native animals can no longer live. It means cultivation, fertilizers, poisons; it means the intercession of more and more grades of "expertise" between producers and consumers; it means the channelling of the sun's energy through a few *manageable* species of animals rather than through a bright array of wonderful forms as nature has always done it.

And then, *education*. Not the slow and costly provisioning of human minds with perceptiveness. *That* might accomplish something. But we must be dynamic and progressive: great buildings, to shut out the sunlight; expensive equipment, to magnify the cell and lose the organism that makes it meaningful; and eminent measurableness, so that we can point with pride; an out-doing of the Russians, that government funds may flow. Application: technicians, salaries, degrees, departments, politics, rottenness.

Our knowledge is backfiring into our faces, and yet the pressure to accentuate the practical can hardly have begun. More than mere *use* is required. Technology's balm will not touch the source of our infection, part of which is technology itself. Yet obviously we do need wisdom, management, and education. But humility before the facts of nature—before the marvels of nature—must be our point of departure. This is no grovelling before what we do not understand, but a loving caution in using facts that we think we are thoroughly familiar with.

We are surely lost if all sciences cannot become more a conviction that we are "the wiser . . . for knowing that there is a minnow in the brook" (Thoreau). So wisdom begins

with luck—in having the brook in the first place; and ends with human restraint in preserving the brook and in keeping it unpolluted enough that minnows can live in it. Without some feeling for the precedence of nature, we shall soon have neither brook nor minnow nor wisdom.

And the minnow's service to mankind is in its own being—maybe even in the number of scales in its lateral line—more than in any arbitrary scheme of values assigned to its use as food, as object of bounty, as destroyer of agricultural pests, as eliminator of weak or sick prey animals, as pet to be caged, or specimen to be idly maimed in a freshman biology class.

People have to get into the open air, have a look at life, and see how fare the neat "laws" that the laboratory gives them. Man today needs badly to cultivate his qualities of seer and thinker. Human life is potentially richer where all of life is richer. Without that richness, all our "education" will be vanity. Life

*Continued on page 137*



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By Don R. Eckelberry\*

**B**BETTER roads, a good rate of exchange, and improved accommodations are opening Mexico to the bird watcher looking for new worlds to conquer. When first I went there only a few years ago there was no single book covering all the birds nor any collected information about places of ornithological interest. While we still do not have an adequate series of illustrations of those species not found in the United States, Roger Peterson is going to correct that. Fortunately we do now have Blake's "Birds of Mexico," the Cooper Ornithological Society's *Distributional Check-List of the Birds of Mexico* and Edward's *Finding Birds in Mexico*. To these basic works I would add Goldman's "Biological Investigations in Mexico," a useful book for ecological orientation in the field, and the recently issued record of Mexican bird songs for ear-training at home.

\* The author, artist and illustrator of the "Audubon Bird Guides" and other books, has illustrated Skutch's "Life Histories of Central American Birds," the second volume of which has recently been published. More than 100 species of passerine birds have been illustrated by Mr. Eckelberry in these two volumes. He has also painted 80 species of birds for James Bond's re-written guide to the birds of the West Indies, which is to be published in June 1960.—The Editor

One of the inhibiting factors to birding south of the border, especially off the beaten track is, I am repeatedly surprised to find, fear of "the natives" or of bandits. It seems that an astonishing number of people still conceive of Mexico as being largely populated by Pancho Villas and wild tribes. While it cannot be denied that some unfortunate incidents have occurred, I doubt that there is any more risk traveling in Mexico than in the United States, provided you don't ask for trouble. The Mexican people, excepting only the more back-country members of such reserved groups as the Otomi and Chamula Indians, are on the whole, extraordinarily friendly and helpful.

Birding is best from March to June. Most birds are then nesting and in full song and high plumage. And song, however unfamiliar, is a great help in locating birds, especially in the areas of perpetual vegetation. Northbound migrants will still be seen but in spring they complicate matters less than in fall and winter. The summer rains and their accompanying insects make many of the particularly interesting lowland areas uncomfortable or inaccessible, though in May I have slept out un-

# BIRDING IN


Close-by, colorful, and varied,  
Mexico remains the author's  
favorite Latin American country.

*Drawings and photographs by the author.*

der the stars in Veracruz night after night. However, summer is the time when most of us can get away and birding then is still rewarding. The almost daily showers are usually restricted to an hour or so in the afternoon.

You will need warm clothes for the highlands even in July or August, and light attire for lowland country. A raincoat is a must. You can get a straw hat for protection from sun and heat anywhere in Mexico. Boots or high shoes are advised as a protection against ticks, which are abundant in the lowlands in the dry season. "Ticks-off," a commercial spray, is a very effective repellent. Tucking trousers in boots will offer reasonable protection.

If you fly into Mexico you can rent a car. For short excursions from the larger towns it would probably be less expensive to hire a car and driver or rent a taxi by the day. Tourists are sometimes charged excessive rates even though the government does its best, which is quite good, to prevent this. The main thing is to negotiate a price; bargaining is expected. The Desert of the Lions and the Pass of Cortes are thus easily accessible from the capital, Tacambaro from Patzcuaro, and

A detailed black and white illustration of two military macaws in flight. The macaw on the right is shown in profile, wings spread wide, revealing the intricate patterns on its feathers. The macaw on the left is slightly behind and to the side, also with wings spread. Both birds have dark plumage with lighter, barred patterns on their wings and tails. Their heads are turned slightly towards each other.

Military macaws.

# MEXICO

El Salto, state of San Luis Potosi. The beginning of the Rio Naranjo (Orange River) is not far above these main falls. Cypress, sycamores, and stands of cane grow on the banks. Above the deep roar of the falls one may hear the chipping of white-collared swifts circling above their nests behind the falls, and the squawks of the military macaws that fly about in pairs.







In the highlands of Chiapas, forests of pine and oak harbor a number of birds not found elsewhere in Mexico, among them the pink-headed warbler, the blue-and-white mockingbird, and the rufous-collared sparrow which here begins its enormous range through South America.



The Mexican plateau is mostly desert and its birdlife is much the same as that in our Southwest, though even here the birdwatcher may see a number of new species.

Flat-crowned trees of the Veracruzian rain forest provide an elevated home in their epiphyte-laden crowns, for species of birds which rarely are seen from the dark interior below.



the road to Alvarado and to the productive marshes beyond (by ferry at Alvarado) from Veracruz City, all as one-day excursions. In the hot areas it is especially important to get into the field early, both for comfort and because the birds soon quiet down and are relatively inactive.

The excellent first-class bus service, so far as I have used it, requires reservations, is inexpensive, and is fast. Second and third classes are progressively slower, more colorful, odoriferous, and zoologically diverse. I have had no experience with Mexican railroads.

If you drive to Mexico, any car will do for the main roads. But if you want to get to the wilder areas, a jeep or any vehicle with a high carriage is desirable, and for really rough situations 4-wheel drive is good insurance. If you get too venturesome for your equipment you can usually find ready and willing hands to help you out. Use only the best gasoline—Supermexolina—which has about the same octane rating as our regular grade, and make a habit of filling the tank whenever you can, as stations are few in some areas and are not infrequently out of high-grade gasoline.

Drivers who do not belong to AAA would do well to join, as the organization provides a fine guidebook with detail maps, lists of auto agencies and service stations, translations of highway signs, and recommended hotels and restaurants. This last is especially useful. You should be careful about food and water. As a rule tap water is unsafe, but you can buy purified water in any town in five-gallon jugs to carry in the car. If you like beer, you will find the Mexican brands excellent and safe, and American colas can be had almost anywhere. We find it worthwhile to take a small icebox with us. If you buy fruits, and you surely will, wash them well and peel them before eating.

In the dry season camping is, to my mind, the best way to travel in Mexico; you can keep to the wild and prepare your own food at your own convenience. Canned goods, especially American brands, are more expensive there than here, though generally available. You may take in whatever canned foods you wish; they may be purchased near the border. Dried potatoes and milk, instant soups and beverages, are a



boon. Mexican baked goods are excellent. Eggs and fruits are to be preferred over fresh meats and vegetables.

Tourist cards and required papers may be had at the border, or, if you fly directly, through a Mexican consulate or the airline. Tourist services, such as that which Humble Oil provides, will take care of your papers, car insurance, and so advise you as to greatly facilitate your entry into Mexico.

An understanding of the geography of Mexico will be of great value in understanding the distribution of birdlife. The greater part of the country is occupied by the interior plateau, a rolling mountain-dotted tableland which, from its broad base at our border, gradually narrows and rises to an elevation of from 7,000 to 8,000 feet at its southern apex near Mexico City. The plateau is flanked on the west by the Sierra Madre Occidental, a continuation of our Rocky Mountains, and on the east by the shorter range of the Sierra Madre Oriental. These mountains rise like great walls from the Atlantic and Pacific coastal plains and converge in an area of tremendous volcanic peaks, ten of them more than 12,000 feet high.

The birdlife of the arid plateau floor differs little from that of our own Southwest. This is the cactus land of the house finch, curve-billed thrasher, cactus wren, and vermilion flycatcher.

Above the plateau the life zones are stacked one on another. From the Valley of Mexico near the capital, you can take the road to the Pass of Cortes on the shoulder between Popocatepetl and Ixtaccihuatl and see a good cross-section of several of these. As you go up into the lower pine belt you leave the brown towhees, cañon wrens, and shrikes behind and encounter robins, black-headed grosbeaks, spotted (rufous-sided) towhees, and such distinctively Mexican birds as tufted flycatchers. On up in the fir belt at about 10,000 feet a stronger Mexican element appears—beautiful little red warblers with silver cheeks, tropical redstarts, white-throated robins, and russet nightingale-thrushes. Higher still at about 12,000 feet near timberline, in an open association of bunch-grass and pines, you find an odd mixture of eastern bluebirds and eastern meadowlarks with such "western"

species as Steller's jays and pygmy nuthatches. Striped sparrows, brown-barred woodpeckers, and a few other Mexican species share this cold, awesome country.

Mountain chains carry many of our western birds on southeast through lower Mexico. The Isthmus of Tehuantepec partially breaks this continuity. In the highlands of Chiapas we still find Steller's jays (now with white eyebrows), red-shafted flickers (here sporting half red and half black mustaches) and yellow-eyed juncos. But here a new element also appears: the red warblers are replaced by the closely related pink-headed warblers and such species as rufous-collared robins and blue-and-white mockingbirds appear for the first time.

Here in Chiapas is a good place to see cloud forest, the humid upper tropical life zone which cloaks the wet windward slopes. These are oak woods but the trees are so covered with mosses, bromeliads, orchids, ferns, lichens, and all manner of epiphytic and parasitic plant life, and so interlaced with tree ferns and other lower growth that you will be hard put to it to find an oak leaf. It is very difficult work to see birds here, but this is the home of the splendid quetzal, the black robin, and the emerald toucanet.

Climbing down from the mountains and plateaus, from *tierra fria* and *tierra templada* to *tierra caliente*, the hot lowlands, we find the real cache of Mexican birdlife, a tropical fauna so dense as to be almost unbelievable. The word *jungle* is so securely attached to a romantic picture of what is ecologically, if less poetically, termed lower tropical rain forest, that its employment is rather misleading. Jungle is a more appropriate word for cloud forest. Rain forest is cathedral-like, a high canopy or roof supported by great buttressed columns rising from a rather open floor. The composition of the forest is very different from that of temperate forests. Instead of being made up of one, two, or at most a handful of species, there is a tremendous number of species though perhaps only a few of any one kind to the acre.

The composition of birdlife is the same. You may see a bird one day and not meet with it again for a week, but in the meantime you will have seen a wide variety of others.



Symmetrical and snow-capped Popocatepetl dominates the view from Cholula on the plateau. "Popo" is Mexico's second highest (17,888 feet), best known and, by Americans, most consistently mispronounced mountain (the accent is on *tep*).



Between ten and eleven thousand feet on Popo the belt of cool fir forest echoes with the windchime songs of brown-backed solitaires and the pure notes of the russet nightingale-thrush.

At the Pass of Cortes, the saddle between Popocatepetl and its sister mountain Ixtaccihuatl, one can see the limit of trees and the usually cloud-shrouded snow of the peak.



In the dark, cool, and rather silent interior of the forest it often seems there are few birds to be found. A motmot gives its double owl-like hoot nearby. You step on a twig and a rufous piha responds with its loud two-finger whistle from high above. You sit down and in a little while you realize there are birds all around you. Many species move through the forest in loose groups very much the way resident birds do in our winter woods. Often they are following

army ants and feeding on the food the ants flush. But just as often I have watched them move past, some on or near the ground, others higher, with no evidence of ants.

The northernmost extension of this vast tropical region reaches into southern Tamaulipas and sweeps through Veracruz, Tabasco, northern Guatemala, and on uninterrupted, until it finds its ultimate expression in South America. Tinamous, parrots, motmots, jacamars,

puffbirds, toucans, ovenbirds, antbirds, manakins, cotingas, pepper-shrikes, and honeycreepers are all typical, if not exclusively residents, of this realm. And many of our familiar North American families are also generously represented here. I think 31 species of flycatchers are listed for all of North America north of Mexico. Mexico has twice this number and a good percentage of them inhabit the lowlands. If you think the *Empidonax* and *Myiarchus* flycatchers are an identification problem in the United States, just come to Mexico!

There are dry areas on this coastal plain. Much of Tamaulipas is xerophytic scrub; there are savannas in Veracruz with hammocks of cabbage palmettos and sections of low deciduous forest; and the northern portion of the Yucatan Peninsula is quite arid. But it is the Pacific slope of Mexico, with its prolonged dry season, which we think of as the arid side. Here we find a birdlife distinctly poorer in species but richer in endemics, or localized species. When crossing the Isthmus you see a great transformation within a rather short distance. On the Pacific side the confiding russet-crowned motmot replaces the retiring blue-crowned motmot, and the magpie jay replaces the brown jay. In Veracruz olive-throated parakeets perch in cecropia trees to be replaced in Oaxaca by orange-fronted parakeets perching on cacti. Yet the abundant green parakeet ranges freely over both arid and humid lowlands.

On my first Mexican trip I saw, between April 15 and June 5—without any attempt to build a big list—415 species! But simple listing is not the greatest attraction for the ornithologist. Neotropical birdlife is probably less well known than that of Africa. Only a few years ago, the late Ludlow Griscom wrote that our knowledge of Mexican birds is approximately equal to what ornithologists knew about the birds of the United States in 1875. There are great gaps in information. In 1952 Dean Amadon, Chairman and Curator of the Department of Birds, American Museum of Natural History, New York City, and I were sufficiently impressed in having seen a flock of 15 or 20 white-naped swifts, more than twice as many as there then were in all the museums, to include it in our paper. I have since

The "grass palm" (*Beaucarnea*) when in flower, as above, better shows its relationship to such other liliaceous plants as the Joshua tree. They are common on the dry hillsides along the road to El Salto.



seen large flocks of these big swifts and have been forced to the conclusion that while it may be a localized bird, it is hardly rare. For many species we know little more than what a few specimens can tell us, so it would be difficult to go to Mexico and fail to make some observations which would deserve publication.

Edward's little book not only lists many birding areas, their facilities and what may be seen there, but also a group of suggested tours and the time required for them. Here I shall suggest only one—to Tamazunchale and return—for those of you who can spare but a week in Mexico, would be driving in from Brownsville or Laredo, wish to concentrate on birding to the exclusion of sightseeing, and on those lowland birds which you could not see in the United States. If you have more time, Sutton's "Mexican Birds," a very fine book with handsome illustrations which are in themselves useful, will suggest additional places to visit within this northern area.

If you are familiar with the birds of the Rio Grande Valley, the first new birds you are likely to see are brown jays, social flycatchers, and green parakeets, though naturally others which are rare or uncommon in Texas are more common by the time you reach Victoria. In this dry brushland you will find the water-

courses you cross more verdant and ornithologically productive.

South of Mante, at Antiguo Morelos (see map) turn right onto Highway 80, pass through Nuevo Morelos and take the gravel road some distance beyond (see Edwards), again to the right. It ends at El Salto, one of the most beautiful spots I've seen in Mexico. There is now a motel at the entrance to the park. It is best to be there on weekdays, when it is not overrun with picnickers. All along the road, birding is good. Well to the right of the waterfall a path leads up the steep wooded slope to a spectacular view of the falls from above, but be careful, it's slippery at the top. You will almost surely see military macaws, Mexican crows, white-collared swifts, Muscovy ducks, melodious blackbirds, and many another new species.

From the manager of the luxurious Hotel Taninul (where you might care to spend a night) east of Valles, a pass may be obtained to enter the sanctuary nearby. The birding is fairly good around the grotto in which hundreds of green parakeets live. It is a fine place to swim.

Many tropical lowland birds can be seen or heard around Tamazunchale (see *The Wilson Bulletin*, Dec., 1940), especially along the river and on up the road toward Jalapa. It would probably be best to make Tamazunchale your base for a side



trip to the mountain village of Xilitla (he-LEET-la) where, so far as I know, there are no adequate accommodations. The road branches off the main highway to the west about 23 miles north of Tamazunchale. It is not very good and is quite narrow, so that I hesitate to advise it for owners of new low-slung cars, but it is worth the attempt. It is important to get a very early start for you will be stopping for birds from the time you reach the ferry at the Rio Axtla, and while Xilitla is no great distance, it is a slow climb. For a description, map, and birdlist of the area (see *The Condor*, Nov.-Dec., 1952) and for additional information about this part of the state of San Luis Potosi see Lowery and Newman's paper in *The Wilson Bulletin*, Dec., 1951.

Such a short junket will not give you the full, rich measure of Mexican birdlife, or of Mexican life for that matter, but it will be enough to provide you with some exciting birding and to infect you with an enthusiasm for tropical ornithology which will take you back for more. After field work in a good many Latin American countries, Mexico remains my favorite. It is so near, so inexpensive, so colorful and varied, that I have written this in the hope that you will experience it too. —THE END

"Mala mujer" is the Mexican name for a plant somewhat resembling in size and leaf the castor bean, which is also common in the tropics. When brushed against, the fine hair on its stem and leaves reddens the skin and smart.







# LUTRA, the ELUSIVE

The shy, widely distributed  
river otter  
may live along a stream  
on our land without  
our knowledge.

*Photographs by Leonard Lee Rue III,  
unless otherwise noted.*

**View of the author's river bank. The den of the family of otters is just to the right  
of the elm tree. Photograph by the author.**

**"It was in the summer of 1958 that I discovered the den."**





By Hope Satterthwaite Jex

THE broad, rounded tracks led purposefully from the ice-bordered stream up the snow-covered slope of the rock, thence showed a leap to the bank. My earlier deductions stood confirmed—an otter was including Rillside, our 13 wild acres at Mill River, Massachusetts, in its winter circuit.

At intervals all winter I had seen evidence of the sliding of otters and wide circling in the snow that covered the deceptive ice at the river's brink. I had not been able to go out there to investigate at close range, the ice would never have borne my weight, but I had surmised otters. And now before my eyes, in tracks that I could measure and sketch, I had the proof.

Though the streams of farmland country may be a familiar route to an otter, the dark, secretive animal is rarely seen by those who till these lands. A creature of lakes and rivers, it leads its shy, but full existence unknown to the people who own the land. Yet the otter is one of the most interesting of animals, exempli-

fying the spirit of play, of fun for fun's sake. The mink, the otter's cousin, plays, as my husband and I knew from watching the gambols of our little tenant of the brook that crosses our lawn, but our mink's play was solitary.

#### THE OTTER

Perhaps the most playful four-footed animal in North America is the river otter, *Lutra canadensis*. It lives over much of the United States, from Canada south to Florida and west to the Pacific Coast, along creeks, rivers, brooks, lakes, and even marine coves, estuaries, and about islands. The males are about three to four-and-one-half feet long and weigh from 10 to 40 pounds. Females are about a third smaller. The dense fur of this long-bodied, short-legged animal, is brownish when wet, and often grayish when dry. Litters of young "pups" are one to four (usually two or three), and are born in February to April in the North, earlier in the South. Otters apparently live long in captivity—a female was still birthing litters at 17 years of age, and another lived at least 19 years.

—The Editor

Otters seek company when they turn to sport. What other wild creatures gather regularly for coasting parties?

As woodsmen know, otters like nothing better than to slide, one after another, down a snowy bank into the water of a stream or lake. They tuck their forelegs straight beneath them and go "bellywhopper," then climb back up the bank, like any group of human youngsters, to recapture the flying thrill. In summer they will accept a grassy bank as a substitute slide for snow, and southern otters will slide down slick clay banks. Such is the ebullient spirit of the otter that it does not restrict its fun to coasting, but will also play tag and stage mock battles.

I was especially glad to find the otter tracks in our well-posted little sanctuary. Even small havens like our 13-acre tract serve a purpose in states such as our Massachusetts, where the encroachment of real estate and industrial developments and the activities of hunters combine to harass wildlife. Here in rural Berkshire County, sportsmen are

*Continued on page 135*

"An appreciable proportion of the otter's diet consists of forage fish, crayfish, and amphibians."



# WHAT ABOUT PROBLEM

**The President of the National Audubon Society presents some practical views about the control of blackbirds and others in agricultural areas.**

**By Carl W. Buchheister\***

AS many of you know, the National Audubon Society has had long experience with America's wildlife conservation problems. We roused the nation to stop the commercial traffic in wild bird plumage, and I think it safe to say that many

\*A slightly condensed version of an address presented by Mr. Buchheister in a "Depredations Control Symposium" March 7, 1960, at the technical sessions of the Twenty-fifth North American Wildlife and Natural Resources Conference, Dallas, Texas.

professional wildlifers will agree that this Society has played an important role in working for the conservative management of our wildlife resources. The notion that we oppose hunting is not true. However, where we feel that the biology of the situation requires more regulation of hunting pressure, we have not hesitated to recommend it. We are, also, practically the only spokesman for birds which are not considered game species. Unfortunately, the hu-

man population growth of the last decade, especially, and the consequent emphasis on economic development are posing many new problems. Today's topic on "problem" birds is of special interest in that it epitomizes the new problems we face.

An important basis for understanding any problem in its entirety, and for reaching a practical solution or compromise, is to view it in perspective. We took part in the preliminary hearing on this topic in Washington last August; we have kept an eye on press reports; and have, of course, discussed it with a number of consultants.

The first point to make, it seems to

**"Depredations in fall may be due not so much to an increase of blackbirds but to the increase of certain agricultural practices that 'bait' them." Photograph by Allan D. Cruickshank.**



# BIRDS?

me, is that claims of increase in blackbird numbers have as yet little or no foundation in fact. There is no question that the starling has increased, but redwings and grackles may or may not be more numerous than they were 20 years ago when I spent more time in the field. We do recognize that there is more depredation from fall concentrations of blackbirds, but we suggest that this may be due not so much to an increase of blackbirds, but, rather, to the increase of certain agricultural practices that tend to "bait" these birds. These are two very different sources of trouble and ought to be considered separately as such.

Before trying to examine this conflict of interest more closely, let me point out certain things that may at first seem to be unrelated to this problem, but which we feel belong in any policy considerations. As of December 1959 we were told that every state but two in our country now have insects that have built up resistance to insecticides. Increasing numbers of conservationists and ecologists are questioning whether accepted practices in modern agriculture and veterinary medicine are devoting adequate attention to the problem of maintaining quality while increasing production. They quote a famous American wildlife manager, Aldo Leopold, who said "Though the Art of Land Doctoring is being practiced with vigor, the science of land health is yet to be born."

In citrus orchards of California, entomologists have found that predatory and parasitic insects do, as a rule, keep pest insects below economically destructive levels, but that these predators and parasites are damaged more by spray operations than the pests the spray was intended to control. Soil health may be similarly affected by our heavy-handed techniques. Ecologist Charles Elton tells us that a lifetime of study has convinced him that the only stable environments are those which contain as diversified a population of plants and animals as nature has developed in that area: that without biotic diversity there appears to be no stability.



"Native bird populations have important biological roles to play in keeping our environments productive and attractive." Photograph of female red-winged blackbird with beakful of insects at nest by W. T. Davidson.

Gentlemen, these several threads of biological evidence point up the fact that native bird populations, like the soil, flora, and fauna of which many of us are hardly aware, have important biological roles to play in keeping our environment productive and attractive. We hear the all-too-common question of the uninformed, "What good is it?" being asked about the birds under study here. The answer, I believe, is neither economic nor esthetic, as many have argued in the past. Instead, the answer is to be found in the biological and ecological values of these species—values of unquestioned significance to all of us. It will, therefore, be a matter of considered policy for the National Audubon Society to oppose any tendency to classify any native birds as pests, and as something to be rid of the way we have tried to get rid of certain insects. Some birds do pose problems locally, and temporarily, but the sensible approach is to control the damage they may do without eliminating or drastically reducing the birds themselves. After all, these birds are of real value to the nation and its people in most areas and most of the time.

At the August hearing in Washington, D. C., the most outspoken advocate of controlling blackbirds was a corn farmer. After the hearing we had lunch with him and learned that he had solved the blackbird problem on his own farm by switch-

ing to a variety of corn with a deep-set ear (Pioneer 302A). When we asked him why such a cultural change couldn't solve everyone else's problem he said, "Well, you know how independent farmers are. You can't tell them anything."

As you have heard today the most discussed blackbird problem nowadays is in the rice-growing region of Texas, Louisiana, Arkansas, and California. Rice-growers have been very outspoken about the need of blackbird control and have already taken things into their own hands in some cases, and have, we are told, resorted to aerial application of TEPP, a very dangerous poison which is not cleared for such use by the U.S. Fish and Wildlife Service. When we look into the background of this problem what do we find? A release by the United States Department of Agriculture, dated January 22, 1960, reports that 58 per cent of all milled rice stocks on hand January first of this year were owned by the federal government. In other words, it seems to us that the conflict of interest we face is one created by the price support policy of one government department, the United States Department of Agriculture, while another department, Interior, is being asked to eliminate the headaches generated by a policy over which it has no control. This, then, is much more than a bird depredation problem. It is a problem of over-all resource-use policy, and our



feeling is that an intelligent solution will require modifying policy all around.

I might be more specific on this point by saying that we are very much concerned to see that most solutions put forth by professional people in agriculture, and even in state and federal fish and wildlife agencies, are *technologically* oriented instead of being *ecologically* oriented. The solution to this problem lies not in finding some new chemical poison to eradicate the things that interfere with the economic interests of a few of us, but rather in adjusting our agricultural practices and policies so as to avoid these conflicts.

We have been labeling more and more species as "pests" and placing all the emphasis on trying to get rid of them instead of learning how to protect and perpetuate the diversity of nature that makes for long-run stability and prosperity. This is the particular responsibility of research people and educators at all levels. It will require a reasonable spirit of give and take, just as our New Jersey farmer friend learned to plant the right crop in the right place to avoid bird damage.

We feel strongly that everyone must get behind the current research program of the U.S. Fish and Wildlife Service which has been described here today, and also, that agricultural experiment stations must help solve this problem by seeking and urging cultural modifications of the agricultural practices that are causing the trouble.

A U. S. Fish and Wildlife Service biologist has reported, for example, that the birds in big roosts of blackbirds are often not the ones that do the rice damage. It would be blind, therefore, to advocate or condone roost reduction, both because it would kill birds that perform an important role in the natural scheme of things, and because it probably would bring no material relief to the complainants. We know, also, that by reducing competition, the decimation of winter populations may actually increase the total production of young during the summer, unless these winter reductions are so drastic as to jeopardize the entire population.

Though I speak out pointedly on some of these things that concern

us, please don't take this as an indication of unwillingness to listen to reason. When we know more *real facts* about this new problem, and when more suggestions of a give-and-take nature have been aired, I am confident that we will find a solution all of us can live with.

One final point. The U.S. Fish and Wildlife Service, at its August hearing, sounded all of us out on the acceptability of changing their bird control policy to the extent of granting permission to "accidentally kill" protected species while engaging in control operations against such species as starlings and blackbirds, which it is now accepted policy to control when suitable cause is demonstrated. We would oppose such a relaxation of policy simply because it would relieve the Fish and Wildlife Service of the responsibility it must now exercise in prosecuting for unwarranted or careless killing operations. None of us will file complaints if an occasional robin is killed when a blackbird flock is reduced, but we want the law to stand so that heedless killing can be controlled.

This puts the U.S. Fish and Wildlife Service in the position of judge and jury, but that is why the Service was organized by Congress. Its responsibility is to protect the public interest in the wildlife resources of these United States. —THE END

#### WANTED—CHECK-LISTS OF BIRDS

In a future issue of *Audubon Magazine*, we plan to publish a list of available regional, state, and local check-lists, or annotated lists of birds for the benefit of our readers. We have had numerous queries from people who travel long distances in their bird-watching, asking us if local check-lists of birds are available from different parts of the country. If you, or your birding group, have one (either free or for sale), please send a sample copy, the price, and to whom our readers should write to get a copy or copies. We plan to list these, possibly with appropriate comments about each, in a future issue of *Audubon Magazine*. Please send your check-list, on or before September 1, 1960, to John K. Terres, Editor, *Audubon Magazine*, 1130 Fifth Avenue, New York 28, New York.

# Nuisance

By Walter W. Dykstra\*

ON August 10 of this year [1959], a group of southern Indiana farmers engaged an aerial applicator to treat three acres of riverbottom land with parathion, a highly toxic organic phosphate insecticide. The area, covered with a dense growth of giant ragweed, constituted a small portion of a 25-acre roost site for 300,000 to 500,000 blackbirds which were causing extensive damage to nearby cornfields. Approximately 65,000 red-winged blackbirds and starlings reportedly were killed as a result of the pesticidal treatment. The only other casualty reported was a lone Cooper's hawk.

The above incident was but one of a growing number of aerial operations that have been carried out with the hope of alleviating bird damage to agricultural crops. The practice is not restricted to the United States. Last year, olive growers in Tunisia applied the same chemical to five acres of brushland and destroyed approximately three million starlings. A few months before, South Africans were reported to have conducted a campaign involving similar treatment of 549 acres of scattered woodland roosts for the elimination of some 56 million red-billed queleas or finches.

This trend toward airplane applications of highly lethal insecticides to concentrations of blackbirds and starlings is a matter of serious concern to the Bureau of Sport Fisheries and Wildlife. We are particularly disturbed over the fact that parathion treated areas constitute a potential hazard to humans, domestic animals, and wildlife for periods of 10 days or longer, depending on climatic conditions. We do not regard this chemical as suitable for general use in bird control.

While crop damage by large concentrations of birds is not new, it

\* Condensation of an illustrated talk presented by W. W. Dykstra, Staff Research Assistant, U. S. Fish and Wildlife Service, Washington, D. C., at the Annual Convention of National Audubon Society in New York City, November 9, 1959.



# Bird Control

**A government official discusses the research program and policies of the U. S. Fish and Wildlife Service in controlling the damage to crops by birds.**



**"In some regions of the country, crop damage has been aggravated by the westward movement and build-up of starling populations." Photograph of starling by John H. Gerard.**

appears to be growing increasingly severe. This may be in part due to changed agricultural practice. In some regions of the country it has been aggravated by the westward movement and build-up of starling populations. This is illustrated in observations reported by M. T. Myres at the University of British Columbia. He lists the first arrival of European starlings in British Columbia during the winter of 1946-47. One roost site in the vicinity of Vancouver grew from 500 birds in 1954 to 25,000 in 1958.

A similar pattern of increases in starling numbers appears to be occurring in western United States. During the past two winters large concentrations of these birds have caused heavy losses in Oregon holly plantations. Tremendous flocks of starlings and blackbirds, numbering in the tens of thousands, likewise cause extensive losses on western cattle feed lots. . . .

While bird damage to cereal

grains such as corn and rice is the most frequent cause of complaint, requests for assistance in bird control cover a wide array of situations. These range from starling raids on backyard feeding stations to bird strikes as a very real threat to high speed aircraft. . . . Although seriousness of bird damage problems is very real, there are encouraging findings from research which are proving helpful for dealing with some situations. Work completed and underway in this field includes:

1. Scare devices—rope firecrackers, exploding shells, carbide exploder, artificial hawk, twirlers, and recorded distress calls.
2. Chemical repellents—commercially available bird "goo" for application on building ledges and seed protectant formulations.
3. Exploratory studies in the development of electronic and ultrasonic devices; example, the bird snapper.

4. Mechanical protectants—woven paper and plastic netting.
5. Investigation of sterility-producing chemicals.
6. Studies of habitat manipulation and changes in agricultural practices.
7. Development of bird-resistant varieties of corn and other cultural methods.
8. Investigation of the light-trap.
9. Search for specific lethal agents.

## *Policy on Bird Depredation Control*

The Bureau of Sport Fisheries and Wildlife is the federal agency responsible for the protection and management of the nation's migratory wild bird populations. In its compliance with legislation delegating this function, the bureau places great emphasis on the benefits of birds, but recognizes that the habits of certain species are at times detrimental to human interests. It also recognizes the inherent right of citizens to apply reasonable and legally permissible measures for the protection of private property.

By virtue of its statutory authority, the bureau recognizes a responsibility to assist in minimizing bird depredations. When rendering such assistance, it is the policy of the bureau to recommend the application of methods for dispersing nuisance bird concentrations. In situations where these procedures are inadequate and where serious economic losses occur or public health and safety are endangered, the bureau will recommend limited local population reduction measures, provided selective methods are known and are acceptable to responsible state and local agencies.

The selection of lethal materials and devices for bird control will be based on research studies which include an evaluation of their hazards to other forms of life. Their use will not be recommended in areas where important wildlife values are endangered. Continuous effort will be made to limit the application of lethal measures and to further the development of other management practices directed toward the prevention of crop or property damage with least harm to fish and wildlife resources.

—THE END

# Wildlife and the Multiflora Rose

In an ecological study, a former staff member of the Audubon Camps discovered many tenants and users of a rose hedge.

By William B. Stapp\*

ACCORDING to my observations and studies, multiflora rose is "room and board" for many kinds of wildlife. For years the United States Department of Agriculture has been publicizing its multiple-use in fulfilling farm conservation practices. Yet, it was not until I made a complete winter-wildlife study in Ohio

\* Mr. Stapp was an instructor in the summer of 1959 at the Aullwood Audubon Center, 1000 Aullwood Road, Dayton 14, Ohio, and previously a staff member of The Audubon Camp of Wisconsin. One of his major interests in natural history is ecology. Readers will remember his previous article, "Food Habits of Long-eared Owls," in the September-October 1956 issue of Audubon Magazine.

of 300 yards of multiflora rose hedge, both quantitative and qualitative, that I realized in how many different ways it serves wildlife. My studies were made during the winter of 1958-59 at the Aullwood Audubon Center, near Dayton.

The hedge that I investigated was planted in the spring of 1953 as 1-year seedlings at a distance of 18 inches apart. By 1958 the thorny canes had extended upward to a height of five to seven feet before they began to droop, umbrella-like. The dense, thorny tangle of branches is already at the stage to discourage any large animal from passing

through the hedge, and thus might serve as a fence for livestock.

In the winter of 1958-1959 the hedge was heavily laden with bright red berries that furnished many animals with food. I saw many kinds of song and game birds feeding on the berries during the winter months—bob-white, pheasant, robin, mockingbird, cedar waxwing, cardinal, tree sparrow, bluebird, song sparrow, goldfinch, junco, and chickadee. The berries were of particular importance in serving many birds with an emergency food supply when snow covered their natural food. The mockingbird, however, fed on the berries

When the author completed his study, he made the exhibit shown below for the museum at the Aullwood Audubon Center. Thousands of Ohio school children and teachers studied the display. Photograph by Mervil A. Anthony.

FRUIT AND VEGETATION EATEN BY A VARIETY OF ANIMAL LIFE



WINTER OBSERVATIONS ON 300 YARDS OF MULTIFLORA ROSE HEDGE

HELPS OUR WILDLIFE BY PROVIDING:  
FOOD SOIL EROSION CONTROL COVER

MULTIFLORA ROSE PROVIDES MANY AULLWOOD ANIMALS WITH FOOD AND COVER, TWO VITAL WILDLIFE REQUIREMENTS. BY SERVING AS AN IMPORTANT WINDBREAK, AND ALSO BY ANCHORING THE SOIL AGAINST WATER FLOW, THE HEDGE IS AN IMPORTANT FACTOR IN PREVENTING SOIL EROSION.

VARIOUS BIRD NESTS WERE ATTACHED AND CONCEALED IN ITS DENSE VEGETATION



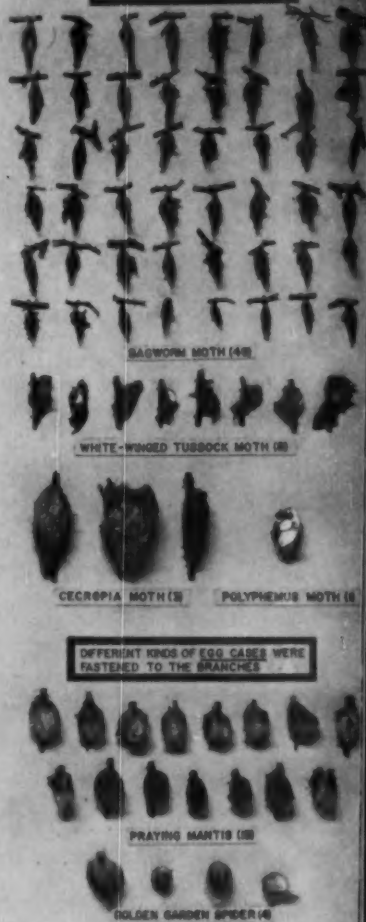
SEVERAL MAMMAL NESTS WERE LOCATED UNDER THE HEDGE



MANY WASP NESTS WERE ATTACHED TO THE VEGETATION



A VARIETY OF INSECT COCOONS WERE LOCATED IN THE HEDGE



by preference and one mockingbird established a feeding territory and successfully protected a small section of the hedge against other species of birds throughout most of the winter. In addition to the birds, various wild, four-footed animals fed regularly on the berries and vegetation of the hedge—cottontail rabbits, white-footed mice, red foxes, and opossums.

The dense, entangled canes of the multiflora rose met the nesting requirements of many animals. In the 300 yards of hedge, four different species of birds nested in the summer of 1958—the brown thrasher, cardinal, catbird, and field sparrow. Under the hedge the nesting conditions were suitable to meet the special needs of three species of mammals—the short-tailed shrew, meadow mouse, and woodchuck.

Multiflora rose attracts many kinds of insects. During the winter census I discovered 12 abandoned paper nests of wasps, 15 egg cases of praying mantises, and various kinds of moth cocoons—48 of bagworm, eight of white-winged tussock moth, three of cecropia, and one of polyphemus. All were attached to the thick canes.

This winter study gives some indication as to the many ways that multiflora rose serves wildlife. By furnishing an important food supply during critical periods and providing ideal nesting sites for many species, multiflora rose fulfills two vital wildlife requirements. In addition to helping our wildlife, the hedge is an important factor in preventing soil erosion by serving as a windbreak and anchoring the soil against water flow.

In return the wildlife helps the landowner by controlling other species, mixing and fertilizing the soil, pollinating crops, and by furnishing him with many hours of enjoyment. Multiflora rose also has other practical values. It serves as an excellent living fence that requires very little maintenance and expense. The fence can be established to keep livestock out of any area that must be protected against grazing in order to control erosion. It is also of high value in serving as an ornamental hedge.

No wonder they call multiflora rose the multi-purpose hedge!

—THE END



Multiflora rose hedge on an Illinois farm is a living fence between fields. Photograph courtesy of Soil Conservation Service, U.S.D.A.

Near Frederick, Maryland, a multiflora rose hedge shows why it is named "multiflora." The flowers attract many kinds of wild bees, wasps, and flies that aid in the pollination of clover, alfalfa, and other farm crops. Photograph courtesy of Soil Conservation Service, U.S.D.A.



# Do we want to save the WHOOPING CRANE?

Photograph of whooping crane by F. W. Lahrman, courtesy of Saskatchewan Museum.



By Robert Porter Allen

This article is published concurrently with its original appearance in the May-June 1960 issue of *Canadian Audubon*, through the cooperation of John A. Livingston, President of the Audubon Society of Canada, and of the author, Robert P. Allen.—The Editor

**T**HERE are two relatively small areas in the vast continent of North America that now hold the key to survival for the whooping crane—the northern breeding grounds in Wood Buffalo Park, and the wintering grounds on the Texas Coast. They lie approximately 2,500 miles apart, and the intervening distance, which is the migration route of these great birds, is traversed by them at enormous risk twice each year.

For a century or more this migration route provided the greatest dangers to the present and only surviving segment of the whooping crane population, the population that

***Their population limited in Texas by the size of their wintering range, the last of the whooping cranes now face a new threat in Canada.***

breeds in the Sass-Klewi region of Northwest Territories, and winters on the Blackjack-Matagorda coastal strip of Texas. Untold numbers of them were killed over the years along this aerial highway, which rivals in total length the greatest river systems in the world. On the prairies of Saskatchewan, along the mighty Missouri where it crosses the wide Dakotas, on the mud flats of the Platte and in the wet salt flats of Kansas and Oklahoma, the annual toll of whooping cranes was a steady and inexorable drain. How many of the young birds failed to reach their winter haven along the Gulf Coast we shall never know.

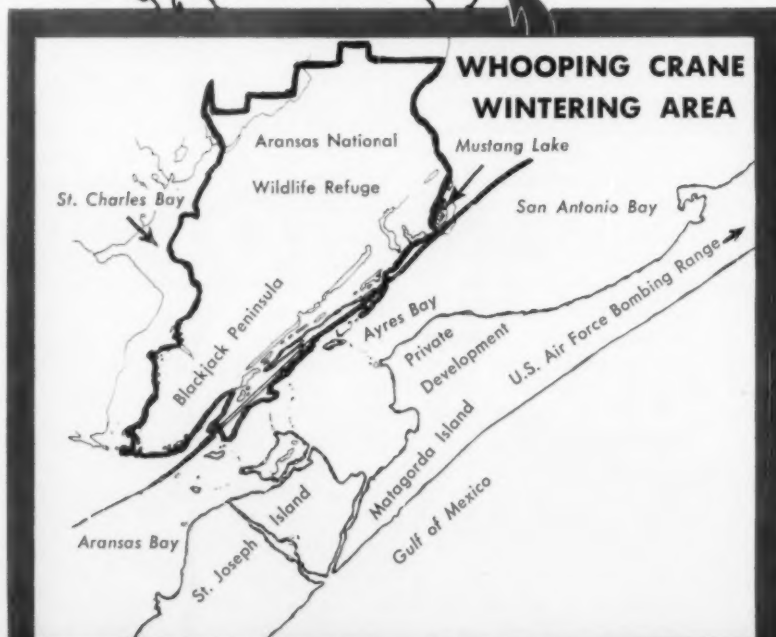
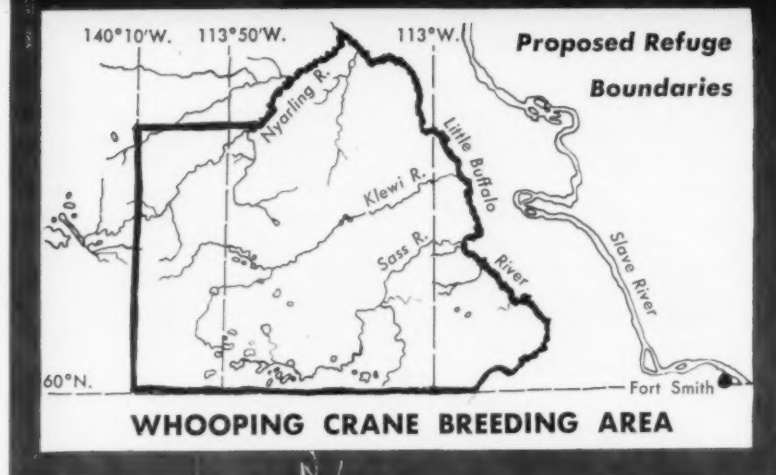
In 1937 the U. S. Government, through its Department of the Interior, purchased from private owners a total of some 47,000 acres on the Blackjack Peninsula, between St. Charles and San Antonio Bays on the Texas Coast. Ostensibly, this area was secured to provide a wintering ground for migratory waterfowl, the first such federal refuge on that coast. But the choice of that particular location was strongly influenced by the presence there, in winter, of a flock of whooping cranes, then as now one of the rarest birds in the world.

In 1945, as the fortunes of this flock appeared to dwindle, the Na-



tional Audubon Society joined with the U.S. Fish and Wildlife Service in a Cooperative Whooping Crane Project and began an intensive inquiry into the habits, distribution, migration, and general status of these birds. From then until the present, not only was the whooper and its way of life subjected to a thorough and painstaking investigation, but its dramatic struggle for survival has been so widely publicized that today no literate person in Canada or in the United States has failed to hear about it.

In the last ten years or so a change has come about in the attitude of the public and in the concern of enforcement agencies, and now losses along the migration route have unquestionably diminished and are pretty well under control for the first time in history. At the same time, other less propitious changes have recently altered the situation at the two terminal points of this route. Both the Blackjacket Peninsula in Texas, with its outlying Gulf Coast Islands, and the vast, virtually unknown Canadian wilderness of Wood Buffalo Park were isolated, cut-off, relatively undisturbed even



some years after the first pioneers ventured into these remote parts of the continent. People settled a few spots on the fringes of the Texas area as early as the 1840's, but there was still lots of room for whooping cranes, down almost to the present.

The Wood Buffalo Park region was first explored by Caspar Whitney in 1895, and in 1907, a party of naturalists, among them Ernest Thompson Seton, traveled down the Little Buffalo River, not far from the breeding grounds. Few people have been that close since.

Today, both of these vital areas are feeling the pressures of a growing human population and of our expanding and unprecedented need for more room and more freedom to stretch our muscles, build our workshops, plant crops to satisfy our hunger, and to take more raw materials from the earth. For the first time there is grave doubt by some

people whether, for all our pious words to the contrary, we can continue to provide sanctuary for large, wilderness-seeking species like the whooping crane.

The situation is this. Of the 47,261 acres (roughly 74 square miles) that comprise the Aransas National Wildlife Refuge, less than 5,000 acres, or about 10 per cent, is suitable habitat for the whooping crane. The requirements of these birds are uncompromising and unalterable, and further complicated by their strict territorial standards. Although comparative isolation of pairs and family groups was noted as long ago as 1845 by McCall, and later by George B. Sennett in 1877, it was not until the winter of 1938-39 that James O. Stevenson, then refuge manager at Aransas, made the first careful observations of the territorial habits.

When I spent two full winters on Aransas (1946-47 and 1947-48), both the ecology of these areas and the nature and significance of territories were studied and mapped in considerable detail. I found that pairs with young exercise first choice, laying claim soon after their arrival in the fall to the "best" habitats. Second choice then goes to pairs with the most vigorous males, while single birds and other unattached individuals wander on the fringes of the established territories.

The "best" habitat can be described as approximately 400 acres of true salt flats, lying below the three-foot contour and with frontage on one of the inside tidal bays. The so-called salt flats include a varied and well balanced complex of ponds and connecting estuaries, normally well stocked with a wide assortment of fishes, decapod crustaceans, marine worms, mollusks, and aquatic insects. The blue crab, *Callinectes sapidus*, for example, is a major food of the cranes.

The pair or family group live within the boundaries of their claim throughout the winter, leaving it only on rare occasions to seek shelter behind an oak motte during a really severe "norther," to feed on some special delicacy such as a new hatch of frogs in a nearby fresh-water pond, or, in a drought year, to find drinking water when the normally brackish water of their feeding ponds becomes too saline. Within the territory they have a food supply that

normally lasts the entire winter; they have wide, shallow ponds where they can roost at night, and grassy banks where they may rest and preen between feeding periods. Their daily routine, the pattern of their winter life, becomes so fixed that one can anticipate each phase of it. It can be almost clock-like in its regularity.

The male bird devotes all of his abundant energies to guarding his mate and offspring and defending the invisible but clearly understood boundary of his territory, driving off all other whooping cranes that may attempt to poach on his feeding domain. Other birds, and mammals such as raccoons, deer, and cattle, wander through the area at will, unchallenged. But the whooping crane pair, mated for life, dwell throughout the long winter months in solitary aloofness, away from their own kind.

As a result of this rigid social segregation and the ecological requirements of each territory, there is a definite limit to the carrying capacity of the winter range. Normally, the available habitat on Aransas Refuge supports only eight or ten pairs, plus whatever young are present. Ideally there are 14 potential territories, but we have never seen all of these occupied during the same winter. In the winter of 1959-60, for example, the number of adults on the refuge after November 1 averaged 22, plus two young-of-the-year. The balance of the total flock of 33 birds had to find living space on either Matagorda Island or St. Joseph Island, on the other side of the bay. Neither of these islands is a part of the refuge.

During December and January, when territories are generally well established, aerial counts showed that as many as nine whooping cranes were occupying the narrow strip of marsh still available to them on Matagorda Island, while from two to four birds were using St. Joseph.

The salt flat habitat on Matagorda Island is now reduced to a narrow half-mile strip between Panther Point on the east and an artificial dike development to the west, a distance of only some five miles. East of Panther Point is the bombing range, in almost daily use by the U. S. Air Force. A few small pockets also remain outside the dike, near the point of land facing Ayres Bay.

In all there actually isn't space for the number of whoopers forced to use it, and this would be especially true if these were solid pairs with young. The only suitable habitat on St. Joseph Island is even smaller, and this past winter supported a maximum of three or four cranes, which may be close to its carrying capacity.

Even if these parcels of privately owned land, plus state land on Mustang Lake and on intervening islands, were added to the refuge—and this should certainly be done!—it should be clear that any increase in the whooping crane flock will tax the normal capacity. Whether additional habitat can be created by artificial means, we do not know. At present, nothing has been done to solve this problem.

When the Canadian breeding grounds of the whooping crane were finally discovered in 1954, it was a great stroke of luck that they were located in Wood Buffalo Park, a vast national park in Alberta and the Northwest Territories. When Raymond C. Stewart of the Canadian Wildlife Service and I spent ten days in the nesting area in 1955, we found a magnificent wilderness where no man, white or Indian, had ever set foot before us.\* We camped on the soft moss of a high *brûlé*, a burned-over island of black spruce along the winding course of the Sass River. At a lower elevation beneath us, and for many miles beyond, lay a broad expanse of muskeg that is the last nesting ground of the whooping crane. This is pothole muskeg, a cluttered maze of ponds and lakes varying greatly in size, surrounded by low, wet banks covered with dense thickets of black spruce, tamarack, willows, and dwarf birch. Here and there along the meandering shore of one lake, or in one end of another, it opens up into wide patches of bulrush or cattail. The whoopers seem to choose islets or long fingers of bulrush in which to build their nests.

There are fishes and amphibians, many aquatic insects, and a number of species of mollusks in the ponds. Dragonflies and damselflies abound,

*Continued on page 134*

\* "A Report on the Whooping Crane's Northern Breeding Grounds": A Supplement to Research Report No. 3, "The Whooping Crane." Published by The National Audubon Society, 1130 Fifth Avenue, New York 28, N. Y., 1956, \$2.50.



Nesting grounds (above) of whooping cranes in Wood Buffalo Park, Canada. National Audubon Society photograph.

Whooping cranes in Aransas Wildlife Refuge, Texas, photographed by Allan D. Cruickshank.







# THE PRESIDENT REPORTS

By Carl W. Buchheister, President of the National Audubon Society

## Needed: A "Coordination Act" for Pesticides

To those who have followed the fire ant controversy it is now obvious that much unnecessary destruction of wildlife could have been avoided if there had been adequate study of the problems, and genuine consultation between insect-control agencies and wildlife agencies, before the massive aerial spraying program was begun.

In the first place, if the real facts about the imported fire ant had been commonly known, the public and Congress would not have been misled by the promotional campaign which erroneously pictured the fire ant as an all-consuming plague, devouring crops in the field, killing livestock, and menacing human life.

But after Congress had appropriated the money and after the spraying planes were in the air, it was difficult to bring about any reasonable second-look at the methods. It became increasingly difficult after the control agencies were put on the defensive by mounting criticism.

The fire ant fiasco and other examples of the careless or mistaken use of chemical controls by public agencies have led the National Audubon Society to conclude that what is needed is a "coordination act" for pesticide programs similar to the famous Coordination Act of 1946 (amended in 1958) that put advance planning and protection for wildlife into the federal flood-control and reclamation programs.

The principle of such a law is simple. It would require advance consultation with the U. S. Fish and Wildlife Service, and advance testing of the materials and methods proposed, before the start of any federal program involving the widespread use of insecticides, herbicides, or other chemicals designed for mass biological controls. Through such advance consultation and testing, the probable effects upon wildlife and other resources could be studied and techniques devised to prevent or minimize losses. We recognize that in this complicated world some chemical controls will be employed, but we must insist they be used safely.

A federal law could not regulate pesticides operations by state agencies or on private lands, of course, if federal funds were not involved. This means supplementary state laws may also be needed.

Enthusiasm for a proposed "coordination act" spread rapidly at the recent North American Wildlife Conference in Dallas, Texas, which your President attended. We can now predict that such legislation will be introduced soon in Congress, probably before this magazine goes to press.

## Oil Pollution Treaty Goes to Senate

The high seas, vast and deep as they are, cannot continue to take increasing loads of oil pollution without

intolerable damage to natural resources upon which the whole world depends. The problem has already become acute. Recreational beaches are despoiled by the tarry wastes that wash ashore. The reduction of marine life needed for human food is largely unmeasured but known to be serious. Nowhere—and we repeat, *nowhere*—is the destruction more dramatic and shocking than in the effect upon birdlife: *250,000 birds foundered and died in oil slicks off Newfoundland during the past winter.* It was the worst winter in history for bird mortality in that area, according to the Audubon Society of Canada. As only one result, the razor-billed auk, formerly present in goodly numbers, is now thought to be virtually extirpated as a breeding bird in Newfoundland. Waterfowl and sea birds continue to perish in large numbers from oil pollution along the coast from Boston to New York, particularly in the Nantucket area.

Here is an emergency which requires international cooperation and national enforcement in territorial waters, and action more prompt than usually characterizes international negotiations. In 1954 United States representatives at a London conference helped draft a convention (treaty) for the prevention of oil pollution of the high seas, but six years later the United States has not yet signed it. Twelve other nations including Canada have joined, or ratified, the convention, which calls for zoning and international controls on the dumping of waste oils at sea.

The pollution usually occurs when tankers are cleaned at sea; when bilges are dumped; or when oil water is discharged in ballasting operations to maintain a vessel's balance.

In a message of February 15, 1960, to the Senate, President Eisenhower asked it to ratify this "International Convention for the Prevention of Pollution of the Seas by Oil." As of this writing, the Senate Foreign Relations Committee, to which the document was referred, had scheduled no hearing or other action upon it. We have written to Senator J. W. Fulbright, committee chairman, requesting that this urgent matter not be overlooked.

## Wilderness Bill Will Be Historic Achievement

The continued postponement of action on the Wilderness Bill, despite the widespread popular demand for this basic conservation measure, is a result of the delaying tactics so successfully used by the opposition. The opposition is well known: certain groups representing commercial users of the public lands who think that some day they may wish to "develop" the few remnants of American wilderness which the bill seeks to protect. They must be looking to the future because no individual who presently grazes livestock, operates a mine, holds a mineral lease, or otherwise enjoys private rights or privileges on the public lands, would be ousted by the moderate bill now pending.

# TO YOU

Conservationists can see no excuse for further delay and continued delaying tactics will be recognized and branded for what they are. On the other hand, passage now of the Wilderness Bill would give members of the 86th Congress an historic conservation achievement to which they could "point with pride."

## New and Old Threats to the Whooping Crane

Through the generous cooperation of President John A. Livingston of the Audubon Society of Canada we are able to publish, concurrently, an article "*Do We Want to Save the Whooping Crane?*" written by our Robert P. Allen for the May-June 1960 issue of *Canadian Audubon*. As our readers know from Bob Allen's previous articles and reports, the future of the whooping crane depends both on its protection on the breeding grounds in Canada and on extending its wintering grounds in the United States. Bob discusses both of these problems. Since his important article speaks for itself, read it on page 122 of this issue—you must!

## The Arctic Wildlife Range

Members who attended our November 1959 convention will recall the eloquent plea by Dr. Olaus J. Murie, Audubon Medal recipient, for establishment of the proposed Arctic Wildlife Range. We now commend the House of Representatives in Washington, D.C., for its recent unanimous passage of a bill to accomplish that objective. Similar action by the Senate would assure the preservation of unique, and irreplaceable, wildlife and wilderness values in a great nine-million-acre area of northeast Alaska. We sincerely hope that Alaska's able senators, Mr. Bartlett and Mr. Gruening, will support the bill.

Because so much of the new state of Alaska is federally owned, and because the territory was so long governed by the distant "great white father," any kind of federal land withdrawal or reservation is said to be unpopular with Alaskans. However, here is a conservation proposal that will benefit the whole nation and generations yet unborn. Tourism is now one of the major industries of Alaska. Assistant Secretary of the Interior Ross Leffler has estimated, probably correctly, that within 25 years the Arctic Wildlife Range will itself attract more visitors than the present total summer influx into Alaska.

With respect to the attitude of Alaskans, it must not be overlooked that the present drive to set aside an Arctic Wildlife Range was started in Alaska by Alaskan organizations. The rest of us followed along and well we should.

The Secretary of the Interior can "withdraw" the Arctic Wildlife Range by executive order, closing it to mining and mineral leasing, and conservationists are urging him to do so regardless of the possibility that such action

by the Secretary might become a "political issue." Passage of the pending legislation would be more to Alaska's advantage, however, because it would permit mineral development under reasonable controls to protect the wildlife.

## A Great Friend Passes

Conservation lost a great and dedicated advocate with the untimely passing March 8 of Richard L. Neuberger, as he was nearing the end of his first term as United States Senator from Oregon. As evidence of the stature he had attained, the place he had won for himself, virtually every Senator who joined the next day in heavy-hearted tribute to their departed colleague spoke of his leadership in natural resources conservation and emphasized it. As journalist, author, historian, and legislator, he used his remarkable talents to assure that future generations of Americans will know and enjoy a fertile and beautiful land.

## News from Our Research Front

We have good news from Alexander Sprunt, IV—"Sandy" to many of you—and from Philip Kahl, Jr. In Florida, under Robert P. Allen's direction, these two members of our staff have been making a scientific study of the wood stork (formerly called the wood ibis) and report that the wood storks have had a successful nesting season. We have quoted from a recent brief report they sent us, in March, as follows:

"Aerial surveys in late January reveal that young wood storks are thriving in five south Florida colonies. After the drastic decline of the species during the drought of the mid 1950's, this is welcome news. In 1959, a good crop of young—some 12,500—was raised and at this writing, prospects point to an even better record this year of 1960. The Corkscrew Swamp Sanctuary colony is at its highest in recent years with at least 4,700 pairs, many of which can be seen from the boardwalk. The four other colonies, two in the Everglades National Park, and two in other parts of the Big Cypress, bring the nesting total to more than 7,600 pairs of storks.

"Water conditions, vital to their well-being, seem favorable, and for the first time in several years, may be considered 'normal.' At this time of year (March) this means that levels are low and still dropping, making it easy for the storks to secure food. This may be responsible for the high incidence of nests containing four young birds which have been observed at Corkscrew. Two or three chicks in each nest are the more usual number.

"Research carried on by the National Audubon Society in the past few years indicates that there may be two nesting populations of wood storks in Florida. One of these is in the southern part of the state during the winter; the other in central and northern Florida in the spring and summer. So far this year the south Florida group is having a very successful season and if conditions also prove favorable for the central Florida group, it will be a banner year for the storks, one which will go far toward bringing the population back up toward safety."

In a future issue of *Audubon Magazine*, Alexander (Sandy) Sprunt and Phil Kahl will provide us with an article about the life history of the wood stork and their researches on this bird in Florida.

—THE END

# THE CICADAS ARE HERE!

By Ronald N. Rood\*

**W**HEN certain worried homeowners and farmers in the eastern United States telephoned to agricultural extension services in June 1957, they found they had plenty of company. Calls had been flooding into the offices of state universities and county agents beginning in the latter part of May.

\* Mr. Rood majored in wildlife management at the University of Vermont, has traveled in Alaska, has flown fighter planes with the 8th Air Force in World War II, and is a natural history research editor for Grolier Information Service. He lives with his wife and four children in a farmhouse in Lincoln, Vermont.—The Editor

A Cape Cod, Massachusetts, resort owner was astonished at the windrows of large insects that littered the sand of his beach. Farmers in Pennsylvania and eastern Long Island wondered what to do about the "big, noisy bugs." New Jersey suburbanites, Kentucky mountaineers, Carolina tobacco farmers, and residents of half-a-dozen other eastern states sent out urgent pleas for aid.

In all these places one might hear the cry—"The cicadas are here!"

In certain places in each state, the foliage had become covered with

slow-moving insects over an inch in body length. Although they did not feed on trees and shrubbery, their vast numbers created a general alarm which rapidly spread over the countryside. Everywhere, the molted skins of the insects could be seen clinging to trees and shrubs, while their newly-emerged inhabitants fluttered noisily in the upper branches.

The cause of all this commotion was the seventeen-year "locust," more correctly known as the periodical cicada. After spending a larval period

Thirteen-year cicadas swarm up the trunk of a tree after emerging from the ground. Photograph by Lee Jenkins.





of 17 years underground, the cicadas were emerging from the cool dark earth. Maturing in different sections of the country in certain years, this was their year to emerge in parts of the East and Middlewest.\*

Coming to the surface, the nymphs crawled stiff-leggedly up the side of the nearest tree or shrub, finally coming to rest a few feet above the surface of the ground. Within a few minutes the longitudinal split appeared in the back, and the crowd-

ing shoulders humped their way through. The head followed, then the legs, and the cicada pulled itself forward out of its old nymphal shell, which still clung to its support.

Forward and upward it crawled, waving the crumpled wings in the air, the body color turning from creamy white to brownish black. Minutes after the nymphal case had first split, the cicada had come to its full beauty; dark body with yellow legs, eyes the color of rubies, transparent wings two inches long and glistening with rainbow hues in the sunlight.

The opening scene had been played in one of the most poignant dramas that exists in nature. Everywhere, on the sides of buildings, telephone poles, picket fences, mailboxes, and especially the trunks of trees, there were dozens, hundreds, thousands of cicadas emerging. The cast-off nymphal skins clung like gigantic buds on the branches of trees and bushes.

Upward and still upward the insects toiled, as if they could not get enough of the warm sun after the long years of darkness. Up the main trunks they crawled, along the larger limbs to the twigs and finally to the tips of the topmost leaves.

Here the second stage in the drama was enacted. Crows, jays, robins, blackbirds, sparrows, and myriads of other insect-eating birds were noisily feasting and gorging themselves on this insect food, suddenly concentrated within their reach. The ground became littered with cicada wings which lay like snowflakes beneath the trees, glistening and sparkling. Nature's great equalization process was in full sway, cutting down the millions of insects, lest they over-run the earth. Although the cicadas feed hardly at all as adults, they spend their nymphal life underground drinking the sap from the tree roots, and thus nature had provided that the demand shall not exceed the supply. Even as the birds were devouring the cicadas, thousands more came to take their places, and the noisy struggle in the tree-tops continued day after day.

Then, almost beyond the power of the human ear to comprehend its exact beginning, the third stage in this drama began. Starting with a faint trill as of some small bird or frog, a new whisper of sound swept through the trees and was gone. In a minute it was back again, and died away a second time, a third, a fourth. Perhaps the fifth or sixth or twentieth or hundredth time it did not die away; it began to swell in volume until it became a steady high-pitched hum. The amazing sound-drums on the backs of the males were beginning to vibrate, and the tone resounded from one tree to another.

At night the sound ceased, and the feeding birds flew off to bed, leaving the treetops as silent as they had been a week before. With the

### Periodical Cicadas and Where They Appear

The following information is quoted from *The Periodical Cicada*, U. S. Department of Agriculture, Leaflet No. 340, May 1953.

"The range of the periodical cicada covers nearly all the United States east of the Missouri Valley, and includes Arkansas and Louisiana. There is considerable overlapping between the 17- and 13-year races.

"Most broods are limited to fairly definite areas, but some consist of small, widely scattered colonies. Moreover, there are scattered colonies that seem to have little connection with large regional broods; nevertheless, when such a colony appears, it is considered to be a part of whatever brood appears the same year.

"For convenience of reference the broods have been designated by Roman numerals. The numerals I through XVII are assigned to the 17-year broods, and XVIII through XXX to the 13-year broods. They are assigned as though a brood were to emerge each year, but, as previously mentioned, there may be gaps, especially in the 13-year broods.

"Numbering of the 17-year broods under the present system began with the 1893 brood, which was designated brood I. The 1894 brood was brood II, the 1895 brood was brood III, and so on. In 1909 brood XVII appeared, and in 1910 brood I appeared again.

"The following listing shows the more important broods, the area in which each occurs, the year of the last emergence (up to 1953), and the year in which the next emergence is due.

#### [17-YEAR BROODS]

"Brood I—a small brood that occurs

principally in southeastern Pennsylvania, Maryland, northeastern West Virginia, Virginia, and western North Carolina; 1944, 1961.

"Brood II—occurs along the eastern seaboard from Connecticut and southeastern New York to North Carolina; 1945, 1962.

"Brood V—a compact brood that occurs in the eastern half of Ohio and throughout West Virginia except in the extreme southern part; 1948, 1965.

"Brood VIII—occurs in western Pennsylvania, eastern Ohio, and the northern Panhandle of West Virginia; 1951, 1968.

"Brood IX—occurs in West Virginia, western Virginia, and northwestern North Carolina; 1952, 1969.

"Brood X—the largest brood; occurs in abundance over much of the northeastern quarter of the United States; 1936, 1953.

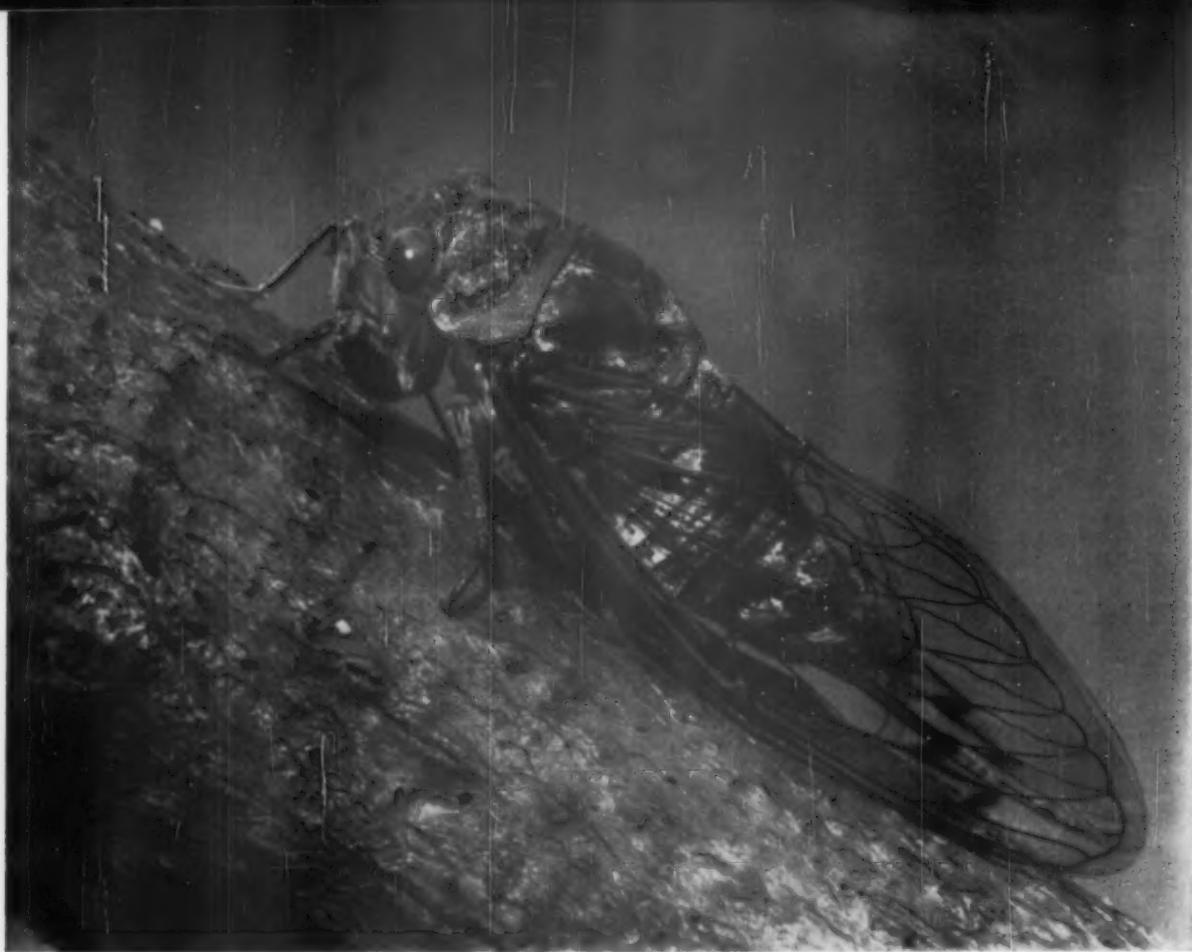
[EDITOR'S NOTE: Brood XIV is a widely distributed, compact one in the northeastern United States, Middlewest, and south to Kentucky and the Carolinas 1940, 1957.]

#### [13-YEAR BROODS]

"Brood XIX—occurs over much of the southern part of the United States; extends into the southern part of Illinois and to northern Missouri; 1946, 1959.

"Brood XXIII—occurs in the Mississippi Valley from southern Indiana, southern Illinois, and Missouri to the Gulf; 1950, 1963."

Readers of *Audubon Magazine* will remember the excellent well-illustrated article about the annual cicada titled "*Years Underground for Weeks in the Sun*," by Ralph and Mildred Donahue, published in our May-June 1959 issue. Many annual cicadas, so-called in reference to their annual emergence, spend two, four, or possibly five years underground as nymphs before emerging and becoming adults.—The Editor.



Seventeen-year cicada. Photograph by Leonard Lee Rue, III.

Eggs of 17-year cicada, greatly enlarged in photograph by George T. Hillman.



Cicada nymph emerging from its underground burrow, photographed by Lynwood M. Chace.



warm rays of the morning sun, however, the chorus began anew. Mid-day again quieted the clamor, but it began afresh towards evening. Thus the first week or two passed, while the ranks of the cicadas in the trees were continually augmented by the myriads still emerging from the ground below.

Finally, the heat of mid-day could no longer still the chorus. About two weeks after the first cicada had been reported, the steady sound swelled to gigantic, overwhelming proportions. It was everywhere, seeming to come from the ground, the trees, even from the skies as male cicadas flew from one spot to another, singing as they went. The individual songs could not be picked out, and the chorus went on with deafening insistence—the sound of life itself, lived to the fullest by creatures privileged to exist a few short weeks in the sun.

Such was the tremendous urge and drive behind the song that nothing short of death would still it. A cicada might be seized by a bird or housecat, or perhaps it might fall into a pool already littered with bodies of dozens of its fellows. No matter; the song would not be denied. It would continue until the songster no longer was alive.

The next scene opened when the singing was at its height and the air itself throbbed with sound. The males began to search out the females amidst this frenzy of noise and activity. No longer were individuals content to clamber over one another in an effort to get to the top of a bush or tree, but they began to pair off for the great purpose which seems to motivate all life—the perpetuation of the species. In pairs they lined the branches and limbs, the males still singing, the females silent and alert. The mating process of the cicadas is wonderfully simple. A brief attachment of the bodies of the males to the females, and the process is over.

All the years of slow toil through the earth, the laborious crawling of a bursting body up into the sunlight, the emergence of a creature of many colors, and the terrible gauntlet through the ranks of the chattering birds—all have been in preparation for this brief moment in the sun. The principals in this drama have played their roles with-

out rehearsal and without flaw, driven by some tremendous urge and led by some commanding law beyond our understanding.

The work of the males was done. One by one, the songs died, and the slowly numbing legs lost their grasp on the limbs to which they had clung. Down they fluttered, perhaps catching briefly to a leaf or twig, but slowly, inexorably being drawn to the earth from which they came, until they lay amid the debris of the nymphal shells which they had split asunder a few weeks before.

The task of the females was not yet finished. The needle-like ovipositor, normally half-hidden beneath the abdomen, lanced deep into the tender bark of the branch on which they rested. Egg after egg was deposited in the green tissue until the body of the female, which had been bursting with its precious cargo, became empty and shrunken. Then, like the males, their legs gradually lost their hold and they, too, fell to the ground. Now there were no adults left, only the eggs, like tiny grains of rice that appeared lifeless and hopelessly inadequate for the long task ahead.

A few days later the shells of the eggs began to crack and tiny nymphs struggled forth. Soon the limbs, trees, and shrubs were once again peopled, this time with tiny ant-like replicas of the big nymphs which had struggled upwards so recently.

With no guide to point the way, they followed the same plan which has been carried out for past ages—feeding for a few brief weeks on the life-giving sap of the upper branches, then dropping to the ground and burrowing down to the tree roots. Down beneath the surface into the cool soil they burrowed. There each attaches itself, the slender beak inserted into the tissues of the root from whence comes its only food for the next 17 years. The sound and the clamor have died away. The earth is silent once more. Not one living periodical cicada can be found above ground over the length and breadth of this area. The years will be long before its allotted time returns. Other broods in other years will appear in places, but not until 1974 will the first full-grown nymph of this 1957 brood make its way above ground.

— THE END

#### BIRD'S-EYE VIEW — Continued from page 103

in North America, not even in Washington, D. C., or in Toronto, where there are some rather good communication systems among the field glass fraternity.

How wonderful were those Saturday and Sunday field trips when we met before dawn at the cafeteria in Harvard Square! Like a commanding general, Ludlow took charge. A council of war was held the evening before. The weather maps and tide tables were studied. Each hour was mapped out so that the most productive places would be visited at the most opportune time. From dark to dark our forces invaded the realm of the birds with military thoroughness. Crossing a field we deployed our ranks on a wide front so that no bird slipped by. Fast travel between strategic areas with a tankful of gas and good brakes was part of our tactics. Twice on round the clock "Big Days," starting with owls and ending with owls, we broke the all-time record for Massachusetts. Our top count was 161, but I presume this has been exceeded since by another group.

Very few North American birds eluded Ludlow Griscom. His world life list was well over 3,000. Even during his long illness he insisted on expanding his world experiences and virtually against doctor's orders set off for Mexico and Africa. After a total of somewhere between 10,000 and 11,000 field trips he had learned to call off birds in a split second so quickly and surely that his scientific colleagues sometimes had their doubts. What gave him this edge? Let us look at his early background. Brought up in a family with a tradition of international diplomacy, he crossed the Atlantic 15 times before he was 28. He spoke French and German, not as an American speaks them, but as a European. All told, he learned to speak five languages fluently, could read ten easily, and could translate up to 18 with a little help. As a youngster, he played the piano so proficiently that by the time he became a young man he had to make a choice between the career of a concert pianist and that of an ornithologist. There came a time when he could further his art only by devoting eight hours a day to the

Continued on page 146



# BIRD FINDING WITH *Sewall Pettingill*

WHERE TO GO  
WHEN TO GO  
WHAT TO SEE



## Birding En Route to Science Meetings

ORNITHOLOGISTS are on the move these days — a fact reflected in attendance at recent ornithological meetings. Take, for example, the June 1959 annual meeting of the Wilson Ornithological Society at Rockland, Maine, and the annual meeting of the American Ornithologists' Union at Regina, Saskatchewan, in August. Both gatherings were unprecedented in their remoteness from centers of membership, yet the turnout at Rockland was more than 300; at Regina, nearly 400. Neither organization had ever had much heavier attendance anywhere.

One reason, at least, why ornithologists like out-of-the-way places for meetings is that they have a chance, if they go by car, to do some bird finding along the way in spots that they might not otherwise have the excuse to investigate. That was the case with my wife and myself when we set out in August 1959 from Michigan to attend the A.O.U. meeting at Regina. For the first time we were able to visit the Audubon Camp of Wisconsin which was in its fifth summer of operation.

## The Audubon Camp of Wisconsin

Although the youngest of the National Audubon Society's four summer camps, it is already on a par

with the others in teaching facilities, congenial atmosphere, and thoughtful management. Its Director, Dr. Nicholas L. Cuthbert, and his charming wife, Mabel, have given the camp the type of personal leadership and inspiration that instills everlasting enthusiasm among the scores of teachers and youth leaders who have had the good fortune to attend a session. For its location and consequent opportunities for field work, I have nothing but praise. In fact there are opportunities for bird finding of which I was unaware, despite my having followed camp publicity with especial interest.

The camp property, known as Hunt Hill, borders on Devil's Lake and embraces 300 acres of varied habitat—two small, deep lakes, a spruce-tamarack bog, mature and secondary deciduous woods, meadows, and fields. The two little lakes, marsh-bordered and undisturbed, are a joy to explore. In June and July, from a boat, you can watch nesting ospreys and black terns and occasionally see an American bittern or a sora. Out on larger Devil's Lake there is at least one family of common loons. Bobolinks and clay-colored sparrows are common inhabitants of the open uplands. The campgrounds are surrounded by a magnificent virgin forest of sugar maple, basswood, and hemlock, where you can get acquainted with cerulean

warblers and, if you are lucky, observe a pileated woodpecker or two. In case you are just plain lazy, you can stay on the campgrounds and watch the colony of cliff swallows on the barn or sit beside the Red Pine Feeding Station which, all summer long, regularly attracts purple finches and five kinds of woodpeckers—hairy, downy, red-bellied, red-headed, and yellow-bellied sapsucker.

Even if you do not have the chance to attend a session at the Wisconsin Camp, you should stop in as we did. It is 117 miles northeast of Minneapolis-St. Paul and 250 miles northwest of Milwaukee. To reach the Camp, go first to Sarona, Wisconsin, and then follow the directional signs east for four miles.

## A Virgin Prairie in Minnesota

At Minneapolis, we joined Dr. and Mrs. W. J. Breckenridge, going in their car. "Breck" and Dorothy, like ourselves, had looked forward as much to the trip to Regina as the meeting we were to attend. There were several places we wanted to look over. Breck was particularly anxious to check up on a 300-acre stretch of virgin prairie in Mahanomen County in northwestern Minnesota. This, for me, was one of the highlights of the trip.

The area is owned by the Minnesota Conservation Department and used for special biological studies.

As Breck had been directing some of the work, he was intimately acquainted with the spot. Thus we had the great advantage of a guided tour.

If you think a virgin prairie looks like any other uncultivated area of the open plains, you have a surprise ahead of you. It has grasses, to be sure, but it is no "sea of grass." The true unspoiled prairie, whose sod has never been turned or otherwise exploited, supports a rich flora of some hundred or more herbaceous species, many of which have showy flowers. On seeing such an environment, one can readily understand what the early western settlers meant by "the blooming prairie."

Although it was August, this area was still colorful with blossoming asters (3 kinds), sunflowers and goldenrods (2 kinds each), closed gentians, blazing-stars, *Liatris*, and bog-stars, *Parnassia*. Had we been there in June or early July we would have been treated to an eye-catching display of flowering harebells, scarlet paintcups, wood lilies, Indian-paint (*Lithospermum canescens*), wild bergamots, prairie clovers, pink phlox, surf-peas, and many others. I should like to have seen the small white lady's-slippers, *Cypripedium candidum*, when they were blooming in mid-June.

A virgin prairie has a rich fauna, too. Here there were such species as the badger, pocket gopher, Franklin's ground squirrel, whitetail jackrabbit, plains garter snake, northern prairie skink, and Dakota toad. During June and July the bobolink is the commonest nesting bird. Other birds include the greater prairie chicken, upland plover, short-eared owl, western meadowlark, savannah sparrow, and Henslow's sparrow. The presence of several sloughs and marshy places in the area accounts for horned grebe, Wilson's phalarope, black tern, LeConte's sparrow, and Nelson's sharp-tailed sparrow.\*

Unfortunately the Mahanomen area is closed, owing to the fact that the studies being made are still in progress. However, the Conservation Department owns another virgin prairie, 2,000 to 3,000 acres in extent, which is open and can be easily reached from the little town of Rothsay (north of Fergus Falls on US

Route 52) by proceeding directly west for two to three miles. The prairie extends north and northwest from this point. According to Dr. Breckenridge, the flora and fauna are practically the same as in the Mahanomen area.

In case you may wonder how it happens that this large tract of virgin prairie has escaped the plow, the explanation is that in the early days the water level was considerably higher, making the land too wet for cultivation. With the present drainage program, the water level has receded, but not before the land came into the possession of the Conservation Department.

#### Stop-Over at Kenmare, North Dakota

Our trip to Regina was planned so as to allow a leisurely stop in the prairie town of Kenmare, North Dakota, for some bird finding with Dr. and Mrs. Robert T. Gammell—a truly remarkable couple. Despite his big medical practice, Bob and Ann manage to get in an enormous amount of bird work, with the result that they know the birds of their state from border to border. Frankly, I don't know how I could have written the North Dakota chapter in my book without their help.

Recently the Gammells have undertaken bird-banding and, as one would expect, if he knows the Gammells well, they have gone into it full steam ahead. Within a period of about 27 months they have put bands on nearly 11,000 individuals representing 156 species, and have already received some exciting returns and recoveries. But their most astonishing accomplishment was capturing and banding over 300 birds one spring day in their own yard!

The date was May 22. Working almost from sunup to sundown in their yard, which is within the residential area of Kenmare and comprises about an acre with a few trees, they caught with mist nets and traps altogether 315 birds representing 28 species. One black-billed cuckoo and one yellow-shafted flicker were the only non-passerines. Almost half (151) were Swainson's thrushes; the next highest (43) were gray-checked thrushes; the third (17) were Baltimore orioles. Nine of the species were warblers and nine more were fringillids. About three-fourths of the 28 species were birds that inhabit trees and shrubs.

What makes the Gammell's accomplishment astonishing is not the number of birds they banded (numerous people have banded many more hundreds in one day), but the fact that they were able to catch this number of migrating, tree-and-shrub birds (1) during the day (2) in the midst of a busy town (3) on the open prairie (4) late in the spring. It's a revelation on bird migration in the northern Great Plains.

#### Opportunities at Kenmare

Besides being adjacent to the Des Lacs National Wildlife Refuge, described in my western guide as one of the musts for the bird finder, Kenmare makes a fine headquarters if you want to get acquainted with birdlife of the northern Great Plains. There are fine motels here, and there are the Gammells who are most generous in directing people to the best spots for such difficult-to-find birds as the Sprague's pipit and Baird's sparrow.

In case you do some bird finding in the Kenmare area, don't neglect visiting Tasker's Coulee, a fascinating woodsy ravine. After you have spent hours on the open plains, battling the winds and squinting in the glaring sun, it's a special delight to drop into this retreat, not only for a rest and change of scene, but also to observe an array of shrub and forest birds that you can hardly believe is within hundreds of miles. Among the 50 nesting species that have been recorded here are the Cooper's and Swainson's hawks, black-billed cuckoo, long-eared owl, hairy and downy woodpeckers, eastern and western kingbirds, Traill's and least flycatchers, house wren, catbird, brown thrasher, veery, red-eyed vireo, black-and-white warbler, yellow warbler, yellow-breasted chat, Baltimore oriole, rufous-sided towhee, and clay-colored sparrow.

Tasker's Coulee covers about 450 acres and is within the boundaries of the Des Lacs Refuge. The part available by car is the picnic and public use area maintained by the refuge and the Kenmare Park Board. You can reach this by turning west on the south side of the Kenmare Public School and proceeding across the valley. Take the left fork in the road after passing the headquarters of the refuge and follow directional signs to the coulee, which is 3¼ miles from the school. —THE END

\* For an interesting account of the plants and nesting birds of this study area, see an article by John P. Lindmeier, pp. 5-9, *The Flicker*, March 1960, published by The Minnesota Ornithologists' Union, Museum of Natural History, University of Minnesota, Minneapolis.—The Editor

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**Quote:** "We shall continue the rest of our lives to find unexpected new sprouts popping up from the seeds planted during our experiences at Sugar Bowl." From a couple who attended California Camp together in 1959.

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Audubon Camp of California

### DO WE WANT TO SAVE THE WHOOPING CRANE?—Continued from page 124

and there are numerous butterflies. Among the butterflies, an outstanding species is the white admiral, *Limenitis arthemis*, and we felt that it typified the wild and yet quiet beauty of this wondrous place to picture a young whooping crane, strong of leg but still flightless, stalking a fluttering "admiral" with youthful exuberance. Summer scene on the Sass!

Best of all, it is an unreachable place, by any present means of travel except helicopter. We tested this the hard way! And, of course, this is why the nesting whoopers continue to live here, from the last of April until October of each year. It is why these great birds still survive—the inviolate nature of this northern wilderness, and far to the south, the remnant of winter habitat is still available to them on the Texas coast.

Now conditions are changing, even in the North. There, as in Alaska, there is a growing pressure to "open up" wilderness country, to take out lumber, clear land for crops, drill for oil, and build new routes of travel and access. Already a portion of once-inviolate Wood Buffalo Park has been leased to a private concern that is cutting timber for the manufacture of plywood, and while this operation is some distance south of the crane area, the precedent has been set.

Even more alarming is the projected construction of a railroad through the park to reach ore deposits now being worked along the shores of Great Slave Lake. As of this writing the exact route has not been announced, so we do not know what its proximity will be to the whooping crane's nesting area. Apparently there are two suggested alternative routes, one north from Peace River along the Mackenzie Highway to Hay River, and thence to Pine Point on Great Slave Lake, another from the present railroad at Waterways north through Wood Buffalo Park to Peace Point and along the Little Buffalo River to Pine Point. We strongly urge the adoption of the more westerly route, from Peace River to Hay River.

The route that is chosen will make a lot of difference to the whooping crane. In our opinion, the west bank of the Little Buffalo, and the conse-

quent invasion of Wood Buffalo Park, would be bad enough. The Little Buffalo is not "just another" stream. Ernest Thompson Seton was of the opinion that "the Little Buffalo is the most beautiful river in the whole world except, perhaps, its affluent, the Nyarling" (see "The Arctic Prairies," by Ernest Thompson Seton, p. 120). Railroad embankments that block the natural drainage of the Sass, Klewi, Nyarling and their tributaries, will bring about ecological changes in the country upstream. There will be fires along the right-of-way, difficult to control in summer. There will be telegraph lines, always a hazard to large birds. Far worse, there will be a means of ready access for people into an area that has been free of such penetration on the ground since the Pleistocene. And once the door has been opened, who knows to what lengths it will go?

A railroad line along the west bank of the Little Buffalo might come as close as eight or ten miles, air line, from the edge of the nesting grounds. From the point of view of maximum security for the whooping crane, this is too close for comfort. If there is no stopping a west bank route, then a tight, permanently restricted and completely inviolate refuge area must be set up so as to prevent, for all time to come, any further violation of that portion of Wood Buffalo Park that includes the whooping crane's breeding grounds. A refuge area of maximum effectiveness, including a safe buffer strip on all sides, should incorporate all that sector of the park north of latitude 60° north, and extend from the Little Buffalo River (or the railroad right-of-way!) west to longitude 114°10' W.

An absolute minimum would be an area extending north of 60° and including east and west from longitude 113° W. to 113° 50' W. (see map top of page 123).

It is my conviction that most, and perhaps in the final analysis, all of the breeding pairs in any given year, nest in the upper Sass, Klewi, and Nyarling region. It seems very likely that all whooping crane pairs do not nest every year, hence a greater concentration of breeding pairs, and a larger production of young, in some years than in others. A considerable



percentage of the total population, young of the previous two seasons and old or otherwise unmated individuals, do not nest at all, and may not even show up in this region in the summer months.\* But the fact remains, that here, in this particular spot, within the ponds and marshes and potholes of this special habitat, the future—the ultimate survival—of the whooping crane is at stake.

Surely a projected railroad route can be confined to a sector that will do no immediate harm, and every reasonable precaution taken to control unnecessary damage to wildlife and scenery, throughout both construction and subsequent operation. Adequate culverts should be installed to prevent the plugging or diversion of streams and the disruption of natural drainage. Fire prevention practices can be put in operation. Firearms should be forbidden within the area, and if black bears raid the construction camps

\* See "Whooping Cranes—Fall of 1959," by John W. Aldrich, *Audubon Magazine*, p. 5, January-February 1960 issue.—The Editor

for food, they can be chased off with shouts and gestures, as we chased them when we were camping in this same region. Dogs should also be strictly forbidden. Finally, the Canadian Wildlife Service should be requested to appoint an officer, or officers, to patrol the right-of-way throughout the construction stage to enforce these regulations.

Both of these situations, in Texas at one end of the line and in Wood Buffalo Park at the other, are obviously critical. The Wildlife Services of both countries would like to do something to remove the present danger, and to strengthen their hand with regard to the future in these two areas. There is grave doubt that they will have much success, however, unless there is a loud, long and indignant expression of public opinion on the subject. Do we really want to save the whooping crane? What happens in these two widely separated but vital areas in the near future may well give us the answer.

—THE END

#### LUTRA, THE ELUSIVE — Continued from page 115

becoming ever more insistent in their demands for the opening of restricted areas to public hunting and trapping. State forests have always been open, but nowadays the barriers are being let down in hitherto inviolate state parks. Better highways and faster cars add to the hunting pressure, locally. Against these odds the wildlife population must seek to maintain itself. Some years ago, at the articulate insistence of the sportsmen, the trapping season in Massachusetts was lengthened by a month despite the warning of the Division of Fish and Game that the furbearers could hardly stand a lengthened season. Today the law remains unchanged, except that the beaver take has been doubled.

In addition to possessing a highly-prized pelt, the otter must contend with the enmity of many fishermen, who regard the otter as a competitor. Yet analyses have shown that, even in gamefish waters, an appreciable proportion of the otter's diet consists of forage fish, crayfish, and amphibians, and speedy trout are passed up in favor of slower-moving prey. Like other carnivores, the otter eats what it can catch. When times are lean it

will include insects and earthworms in its diet.

Now that I was completely assured of the presence of otters on our land, I redoubled my watch for their activities. Never did I see one of them, but at intervals their tracks would show along the river for a few days at a time. These intervals were due to the otter's habit of circling a wide area, a habit caused by the necessity of following its food supply. In winter, as one stream or lake freezes over, the otter must move on till it finds another body of open water, and sometimes it journeys overland between waterways. But recurrently, the tracks and the sweeping paths along the river's edge appeared. Each time I saw them I rejoiced.

Unfortunately, the portion of the river's bank that our otters visited has too many piles of rocks which give them no chance for a steep, coasting slide. Still, from the evidence of the well-furrowed snow, they managed to have a high time bounding and sliding below the rocks, at the very edge of the river.

When summer came, to my delight, I continued to find occasional

Continued on page 148

## Plan Now to be in Maine in '60

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For anyone 18 years of age or over.

**Quote:** "—it opened my eyes to so many new avenues of thought and study that I shall never be at a loss for something to read about or about which to think and observe." From a letter from Mrs. Gladys M. Foster, Maine '59.

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## Attracting Birds



### Sugar as a food for Hummingbirds

By Adele Lewis Grant

THAT sugar and water is a desirable food for hummingbirds has been definitely demonstrated by the experience of many members of the California Audubon Society in the feeding of birds at the Tucker Bird Sanctuary in Modjeska Canyon, Orange County, California. Based upon this experience, we do not agree with the statements that the late Mr. Erwin M. Brown of Tujunga, California, made in articles published in the *Los Angeles Times*, May 30, 1959, and in *Audubon Magazine*, November-December 1959 issue, to the effect that the feeding of sugar and water to hummingbirds is detrimental to the health and even the lives of these tiny creatures.

The Tucker Bird Sanctuary was started by Mr. B. F. Tucker of Long Beach, who began feeding hummingbirds about 1926.\* Later this property was deeded to the California Audubon Society to be maintained as a bird sanctuary. For more than 20 succeeding years, the California Audubon Society has kept up an uninterrupted feeding program for the many birds at the sanctuary. In all of this time only a few dead hummingbirds have been found on the sanctuary acres, and in each case they were migrating birds and were found early in the year. Two people are employed as full time curators at the sanctuary and they, or other members of the society, are on duty all day long every day. The hummingbirds are fed by means of the Tiny Tucker Hummingbird feeders, and these are filled as frequently as necessary so that there is always a supply of the sugar and water mixture available. No one has reported seeing any listless birds at

the feeders or elsewhere on the property. There are scores of hummingbirds at the sanctuary, even hundreds, during the spring and fall migration. They fly around very actively, shooting up into the air, through the trees, or chasing each other hither and yon, in anything but a listless manner.

Mr. Brown, in his article, claimed that hummingbirds fed on honey and water were noticeably larger in stature and had more brilliant plumage than those consuming sugar and water. One wonders just how anyone could tell the difference in size of a hummingbird fed on honey and water, and one fed on sugar and water unless the individual

#### About the Author

Dr. Grant is a member of the Board of Directors of the California Audubon Society, and a member of the San Fernando Audubon Society.

She said, in a recent letter—

"We, at the Tucker Bird Sanctuary feel very strongly that Mr. Brown's article should be answered . . . we are very proud of the sanctuary and the many birds we feed there—also the many people who come to see the birds . . . one Sunday over 600 people came . . . We pay a man and his wife to act as curators . . . Incidentally, the sanctuary is self-supporting.

"We do not object to people feeding honey and water to birds if they wish . . . It is just that we have been more successful in using the sugar and water solution . . . I recall that Mr. Tucker started feeding equal parts of sugar and water, but after a while, he changed to two parts of water to one of sugar. We have used that for years and have found no evidence that it is harmful."

\* For an account of Mr. Tucker and his sanctuary, see the illustrated article, "Hummingbird Bar," by Lorus J. and Margery J. Milne, *Audubon Magazine*, July-August 1949, pp. 240-245.

birds were in hand where they could be measured and weighed. The brilliance of the plumage is most dependent upon light factors; that is, the direction of the light in relation to the position of the bird and the observer. How this could be evaluated comparatively is certainly debatable unless two birds were side by side so that the light factors were equal.

The California Audubon Society believes that honey and water could be used as food for the birds but the chief objection is that honey ferments too rapidly when exposed to sunlight, even though the water has been boiled. The birds refuse to drink fermented honey. The same objection holds for use of brown sugar and water. All of these have been tried at the sanctuary.

We maintain that the hummingbirds do not feed only on sugar and water in the feeders. Watch them with binoculars and you may see them darting into the air for tiny insects, usually too small for us to see. They glean the undersides of leaves and search the bark of trees and other places for small spiders and tiny insects hiding in crevices. We are confident that they obtain sufficient proteins and minerals from the insect food they find to maintain a balanced diet.

Dr. Jean Delacour, Director of the Los Angeles Museum, an ornithologist and aviary of note, feeds hummingbirds at his home and he says he does not believe that the feeding of a sugar and water solution is at all detrimental to the welfare of hummingbirds in the open.

Dr. N. H. Mellor, an active member of the San Bernardino Audubon Society, has had experience in feeding hummingbirds. He says that he has found no evidence of any harm coming to the birds through feeding them sugar and water. Moreover, referring to Mr. Brown's account of many dead hummingbirds found around the feeders at a feeding station near Idyllwild in the San Jacinto Mountains in California, Dr. Mellor says that he was present when Mr. Adams (the owner of the feeding station) was spraying the feeding bottles frequently with a commercial spray containing a mixture of nicotine and DDT. This was used to discourage the bees that clustered around the feeding bottles. Dr. Mellor believed that the dead hummingbirds found near the feeders were killed by the poison in the spray and not by feeding on the sugar and water mixture. Further, after Mr. Adams discontinued using this spray, he did not find any more dead birds. Incidentally, Mr. Adams, according to Dr. Mellor's account, now uses a sugar and water solution to which he adds Stewart's Formula Vitamins. In an article in *The Western Meadowlark*

of the San Bernardino Audubon Society for December, 1959, Dr. Mellor writes: "I have never found any factual data to substantiate the claims made for honey over sugar and there are several disadvantages to honey. I think one of the most eloquent facts supporting the premise that diluted sugar syrup is not harmful to non-caged hummingbirds who get their protein, vitamins, and other food elements from nature is the experience of the California Audubon Society at the Tucker Hummingbird Sanctuary."

John K. Terres, Editor of *Audubon Magazine*, p. 196, September-October

Turn to next page

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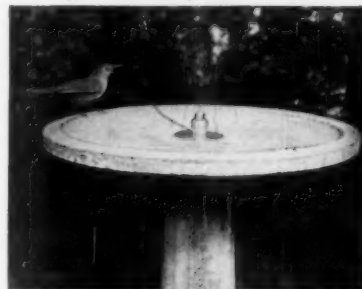
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1955 issue, related that he had been using sugar and water solution (one part sugar to two of water) for many years without any apparent harm to the birds. He emphasized the difference between feeding wild hummingbirds and captive hummingbirds. We feed only wild birds at the sanctuary. We believe that the wild birds can and do hunt insects and small spiders and get their protein and minerals in this way. Many plants, especially those having more nectar in their flowers, are grown in the garden at the sanctuary. The hummingbirds sip the nectar from these flowers as well as the sugar and water in the feeders.

Mr. Robert S. Woods, in "Bent's Life Histories of North American Cuckoos, Goatsuckers, Hummingbirds, and Their Allies" (Bulletin 176, p. 379) says, "At times when their natural food is scarce, hummingbirds will gladly avail themselves of offerings of saturated sugar solution which seems to be preferred to commercial honey." Further on he writes that F. C. Clark (*The Condor* 5:18, 1902) found that the stomach of an Anna's hummingbird contained 32 trechoppers, 1 spider, 1 fly, and other insect remains. This indicates how many insects a hummingbird can eat.

Mr. Brown seemed to assume in his article that the hummingbirds frequenting the feeders get all or most of their food from them. Paul Colburn, Director of the Tucker Bird Sanctuary, says that there is no evidence that this is so, and he claims that the sugar and water is a supplemental food and that the hummingbirds secure enough insects and spiders to keep active and healthy.

Certainly the experience of the observers at the sanctuary indicates that this is so.  
— THE END

### Editor's Comment

As we wrote, in a recent letter to Dr. Grant, we had not realized when we published Mr. Brown's article in the November-December 1959 issue of *Audubon Magazine*, that we would be inviting what appears to be a controversy, particularly in California. The late Mr. Brown's claim that honey-water is a healthier food than sugar to offer wild hummingbirds was based on the general belief by nutritionists and others that honey is a more complete food than sugar. Also, we do know that sugar-water fed (one to two parts of water) to captive hummingbirds in the New York Zoological Gardens was harmful to them but this may not be true of wild hummingbirds which get more exercise and include other natural foods—insects and nectar—in their diets (see *Audubon Magazine*, p. 196, September-October 1955 issue.)

This is the kind of problem which can be resolved to everyone's satisfaction only by scientific experiments. Until then, we believe it might be better, if one wishes to offer sugar-water to hummingbirds, to use it one part sugar to three of water, instead of one to two. We believe it is better to err on the side of a "lean" sugar-water mixture rather than a too-rich one, and that regardless of past experience, protecting the birds we feed from any potential harm should come first.

— THE EDITOR

### NATURE AND MAN — Continued from page 107

has the roots of its richness in areas that man has left alone, often those areas that in the past have been economically useless. We are no longer a people with hoes nibbling at the landscape; "useless" bits of land are being remodeled nearer and nearer our own image, and lost to nature so long as our age of concrete endures.

Civilizations destroy the "useless" and the "harmful" in nature (with increasing success), put the rest under the halter, and place more and more of the individual man into the icebox. Nature, on the other hand, is liberating, elementally and not merely legally, freeing the eye with its multitude of forms and saving the mind by its offering of alternatives to dictatorships of fad and fashion and decree. If we look deeply into relatively undisturbed

nature, we have used the most precious gift of science; if we understand even superficially we have had science's greatest blessing. True science does not consist of quarterly reports and sure-fire returns.

But man is not merely a thinker. He is a biological organism. He requires appropriate natural surroundings for the play of his activities. One function of a spacious world where natural beauty and complexity have full sway would be not only in its food for man's thought, but also in its being food and a place of refuge for his body. People are hardly justified in having bodies, they derive so little good from them.

Perspective cannot altogether be taught; it has to be "discovered" by the individual. If men, in their leisure time are lured away from the social and intellectual opiates

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of cities, something has been accomplished. If, during that harried truancy, they gain a glimmer of understanding, a minor miracle has occurred. There is real danger that a whole generation of people will one day be reared away from contacts with wild nature. Something compulsive is needed to make at least a few people into a part of the country: not for fresh air merely, but for benefits that the country nurse can never measure.

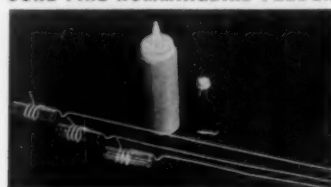
It is indeed hard to see how man can long maintain contact with nature in the years that face us. A kind of human management is needed. We must do the managing, with nature and man's place in it clearly in view. No kind of self-management is so much needed as population control. Without that, any appreciable amount of "nature" of any kind is out of the question. Consider the bad names, the crooked statistics, and the hoots of derision with which Thomas Robert Malthus is "proved wrong" these days, and you will see the task that looms ahead.

Society-worship lies deep among our roots. Abstractions of nature in still-life, in formal gardens, or regimented agriculture, are held up as not only substitutes for but even improvements upon nature. The sense of husbandry fostered by forestry, game management, or outdoor recreation means for some people that they are not liable to the same ethical strictures that ought to govern human activity in any field of nature. The feeling is deep that more basic laws of nature can be discovered in the laboratory than in the field or at the observational level, and that the resulting "control" over nature is the chief glory of man.

Many persons also insist that a peculiarly mystical and durable essence of humanity gets entombed in bronze, cast into marble, molded onto canvas, or enshrined in great buildings. They belittle the role of environment, not only in its symbolical function, but also its vital role in providing the largeness of bounty that makes leisure possible. Such people desire—or in practice, encourage, and make inevitable—a world smothered into humanized stability. Some of them desire—or overlook—the stabilization of humanity that must follow as man, cut

Continued on page 144

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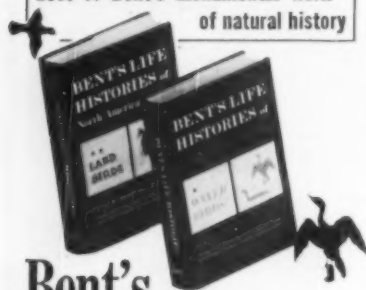
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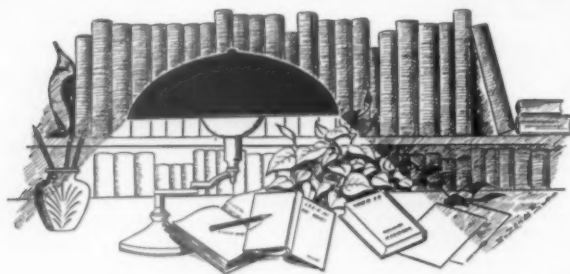
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# BOOK REVIEWS



### THE FOREST AND THE SEA

By Marston Bates, Random House, New York, 1960. 5½ x 8¼ in., 276 pp. No illustrations. \$3.95.

By Leonard Lee Rue, III

"No man is an island" is the theme of this latest book by Dr. Marston Bates on the "economy of nature and the ecology of man." Dr. Bates, at the present time, has returned to the teaching of zoology at the University of Michigan. He is a graduate of the University of Florida and did his graduate work at Harvard. He has worked in Honduras and Guatemala, studied in the Caribbean area, and been in charge of a laboratory in Albania and Egypt studying the biology of malarial mosquitoes. He was then made director of the Rockefeller Foundation's yellow fever laboratory in Colombia, South America. In 1949, as Special Assistant to the President, he transferred to the foundation's New York office to explore the relations between public health and human populations.

While at Michigan, he studied in Micronesia, lectured at Hopkins Marine Station at Stanford University, and on a leave of absence was research director for the University of Puerto Rico.

Drawing upon this vast fund of knowledge and experience, Dr. Bates has written an excellent book on what he calls "skin-out" biology of man and his relationship to his environment. While he has not been talking down, the book is written so that it can be easily read and enjoyed by the layman. All too often, books on ecology are written by professors, for professors. The public, which has a need for this information, is usually stymied by not being able to comprehend the message its author intends to convey, or by the dullness of its presentation.

This is one of the most thought-provoking books I have ever read. Dr. Bates skillfully points up questions or

leads up to them in such a manner that one wonders why we didn't think of that. I found that time after time, I would put down the book in order to think out the chain of events that Dr. Bates' spark had ignited.

"When some thinker does come forth to provide us with a rationale for conduct, he will have to consider not only the problems of man's conduct with his fellow men, but also of man's conduct toward nature. Life is a unity; the biosphere is a complex network of interrelations among all the host of living things. Man, in gaining the god-like quality of awareness, has also acquired a god-like responsibility. The questions of the nature of his relationships with the birds and the beasts, with the trees of the forests, and the fish of the seas, become ethical questions; questions of what is good and right not only for man himself, but for the living world as a whole. In the words of Aldo Leopold, "we need to develop an ecological conscience."

We must all come to realize the basic soundness of these concepts, and Dr. Bates helps us up to take this plunge as painlessly as possible.

### A FIELD GUIDE TO THE BIRDS OF TEXAS

By Roger Tory Peterson, Texas Game and Fish Commission, and Houghton Mifflin Co., Boston, Mass., 1960. 7½ x 4½ in., 304 pp. Illustrated. Indexed. \$3.00. (Purchase from the Texas Game and Fish Commission, Walton State Building, Austin, Texas.)

By Roland C. Clement

Texas birders are fortunate in that their own state can furnish enough identification challenges for a lifetime. With 504 species, the state-list is more than a respectable "life list." And now Texans have their own Peterson Field Guide.

Happily, the custom of state field guides is not likely to spread, but in the case of Texas, it was a logical de-

Mr. Clement is Membership Secretary of the National Audubon Society.

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velopment. Habitats range from the humid east where 40 inches of rainfall make for a forested area, with rice culture along the coast, through a great variety of transitions, from prairie to the cactus-mesquite region of southwest Texas, with only 20 inches of rain and a Spanish culture. This sort of diversity makes for diversified birding.

The Texas Ornithological Society has divided this patchwork of habitat types into eight regions, and Mr. Peterson has used a modified version of these regions in discussing distribution. For the beginner, I feel it would be even more helpful to provide a vegetation map as a base for discussing bird distribution.

This new field guide includes several innovations, marks of the continuing improvements those who follow Mr. Peterson's multitudinous contributions have come to expect of him. It is a great pleasure to say that this latest book marks another step forward. The treatment of bird families has been helpfully expanded. By listing the number of species in the whole family, those which occur in North America, and those in Texas, the reader is given valuable orientation. The more experienced observers will, I hope, rejoice in noticing the nearly complete absence of subspecies treatment. This will help focus the amateur's interest on the significant rather than the trivial. More details are given as to general distribution of birds in the United States, in itself, seasons of the occurrence of birds, and their habitat preferences. Peterson also introduces a standard for stating relative abundance, long a difficult point in birding terminology.

Two-thirds of the plates are new or modified. The use of offset reproduction has allowed minor changes to be made without sacrifice of quality. As in all such works, however, some unevenness creeps in. In my copy, one plate of warblers and one of shorebirds are "soft," for example, but the new plates on the grackle-oriole group, the thrushes, jays, woodpeckers, and sparrows are very superior to those in the eastern field guide. The sparrow plates, especially, are of much truer color.

Because this is, in a sense, a hybrid product, combining old and new plates, the book does not measure up to Peterson's "Birds of Europe," but it does make us look forward to his revision of the western field guide with eagerness.

It is of special interest that this volume was prepared for the Texas Game and Fish Commission, of which 25,000 copies were printed. It is not for sale through ordinary commercial channels but may be bought from the Commission. (Walton State Bldg., Austin, Texas.)

**JOHN JAMES AUDUBON:** *Special Audubon issue of the Princeton University Library Chronicle* (Vol. XXI, Nos. 1 and 2), 1960. 6¼ x 9½ in., 103 pp. 16 pages of illustrations. \$1.25. Obtainable from Princeton University Library, Princeton, N.J.

By George Dock, Jr.

The Audubon Exhibition at Princeton University Library during the summer of 1959 was notable for the number and diversity of interesting items which it contained. In addition to material from the Princeton Collections, loans from several different museums, libraries and private collections made the array a veritable "core-section" of Audubon's life. It was well arranged for close-up inspection and leisurely reading.

Now, in this pocket-sized "Chronicle," we find a descriptive catalogue of the exhibition, with collotype illustrations, and related articles on Audubon. It provides many rare glimpses and one entirely new revelation of the life and achievements of America's great pioneer nature-painter.

The "new" discovery, presented by Francis J. Dallett, delivers the *coup de grace* to the legend that Audubon was none other than the "Lost Dauphin" of France, the son of Louis XVI and Marie-Antoinette. It consists of three documents, the first of which was Audubon's application for U.S. naturalization, filed in Philadelphia in 1806, when he was 21 years old. The record of his naturalization was filed in the U.S. District Court in Philadelphia in 1812.

His sworn application makes plain that Audubon was aware that he had been born at Les Cayes, in Saint Domingo, and not, as he later wrote, in "Louisiana" nor as others have contended, in the luxury of the French royal court!

Other valuable material in this Princeton Chronicle includes an address given by the "Elephant Hunter," Walde-mar H. Fries, on Audubon's voluminous writings, and detailed descriptions of all the 173 items displayed at the Exhibition. They ranged from Audubon pencil sketches and watercolor and oil paintings to letters and documents of historic interest, assorted personal effects of the artist, and several Lizars and Havell engravings. One astonishing feature of the Exhibition was an Audubon percussion-cap shotgun over five feet long—hardly a weakling's weapon!

To many readers, the most welcome section of the Chronicle is a brief, authoritative biography, written by Howard C. Rice, Jr., Chief of the Depart-

Mr. Dock, an expert on John James Audubon, and an experienced bird watcher, and writer, was formerly in charge of public information for the National Audubon Society. He is now an executive of an advertising agency in New York City.

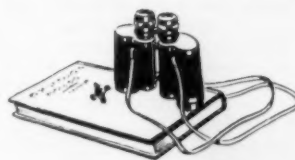
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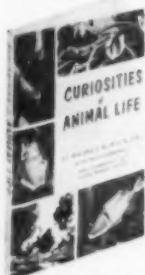
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ment of Rare Books and Special Collections at Princeton, which had arranged this exhibition.

This little book can be recommended to anyone interested in Audubon's incredible career, or in his contributions to the modern world.

### THIS IS THE AMERICAN EARTH

By Ansel Adams and Nancy Newhall,  
Sierra Club, San Francisco, Calif., 1960.  
13¾ x 10½ in., 89 pages. Illustrated  
with photographs. \$15.00.

By George Porter

In contrast to most of the current spate of books on conservation, which deal with this most vital problem of our times in a scientific and statistical manner, here is a book that shows graphically what it is that we are in such danger of losing. This book is a joy to behold.

There is hardly another photographer alive today who is able to capture the wilderness in its full beauty as impressively and as expressively as Ansel Adams. The photographs in this book, originally part of an exhibit shown at the Sierra Club in Yosemite Valley to explain what national parks are really all about, represent some of the best of Mr. Adams' large portfolio, as well as the work of several other outstanding photographers. It is to the great credit of the publisher that these reproductions of Mr. Adams' superb printing mastery are excellent.

The message of the pictures is powerful: here is what we still have and what we surely will lose unless we turn the tide of destruction and exploitation. We are jarred into awareness of what the future may look like by such pictures as William Garentt's "Housing Developments, Los Angeles," a wide-angle aerial photograph of urban sprawl from horizon to horizon.

This book is primarily a picture book, pictures of strength, of evocation, and of great beauty, and it must have been a very difficult job to find words to give such pictures the accompaniment they need to deliver the full message of the book. Nancy Newhall, who has worked with Ansel Adams on many previous books, as well as having written several books of her own, has chosen these words well, and they tell a story which we in essence may often have heard before, but which is expressed this time in a manner that lets no reader escape the dramatic impact.

Anyone who has ever looked in awe at a mountain, who has ever walked through the stillness of a forest, who has ever marveled at the beauty of a

George Porter is Assistant Treasurer of The National Audubon Society, and a nature photographer.

flower or a blade of grass will find in this book new inspiration and a source of determination to keep inviolate this American earth.

### BENT'S LIFE HISTORIES OF NORTH AMERICAN BIRDS

Edited and abridged by Henry Hill Collins, Jr., Harper and Brothers, New York, 1960. Volume I, Water Birds, Volume II, Land Birds, 8½ x 5½ in., 356 and 374 pp. \$5.95 each.

By Allan D. Cruickshank

Arthur Cleveland Bent contributed a great deal to American ornithology in compiling and writing 20 illustrated bulletins dealing with the life histories of North American birds. This work written for the Smithsonian Institution attempted to gather all available information about the life history of each species. Probably more important it emphasized how little actually was known about most of our birds. Since completion of most of these volumes so much field work and research has been done by an ever increasing number of field ornithologists that most of Bent's volumes are now considered out of date. However, they remain a great source of information and inspiration, and are constantly referred to by research students. Bent's Smithsonian bulletins still present the most detailed treatment for the entire body of more than 1,100 American species and subspecies. It has been estimated that up to the time of his death in 1954, Bent had written five million words for the 20 bulletins.

Henry Collins has attempted to reduce this mass of work into two volumes. He is to be commended for this tremendous undertaking. Unfortunately, however, any abridgment of Bent's life histories immediately destroys most of their usefulness. One or two paragraphs about a bird that well may have added much to a lengthy discussion or compilation, when taken by themselves often have little significance.

The beginning bird student or casual reader who knows little about birds undoubtedly will enjoy the bits of general information selected for these volumes, for Bent's literary style makes for interesting and easy reading. Advanced students and ornithologists will have little use for these volumes. In fact, many will object to such an abridgment, and very critical reviews are bound to appear in some of our scientific ornithological journals.

Allan D. Cruickshank, a member of the staff of the National Audubon Society, was for 20 years instructor in ornithology at the Audubon Camp of Maine. Noted as a photographer of birds, and an expert in their field identification, he has authored many books, including "Hunting With the Camera," "1,001 Questions Answered About Birds," "Wings in the Wilderness," and others.

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## JUNIOR BOOKS

MY SIDE OF THE MOUNTAIN (8 and up)

By Jean George, E. P. Dutton & Company, Inc., New York, 1959. 5½ x 8 in., 178 pp. Illustrated by the author. \$3.00.

By Dorothy A. Treat

"I am on my mountain in a tree home that people have passed without ever knowing I am here," writes Sam. "The house is a hemlock tree six feet in diameter . . . It is the fourth of Dec., I think. It may be the fifth. I am not sure because I have not recently counted the notches in the aspen pole that is my calendar. I have been just too busy gathering nuts and berries, smoking venison, fish, and small game to keep up with the exact date." Sam is a 14-year-old Boy Scout who liked the fields and woods so much that he wanted to see if he could live in them all by himself—live off the land.

Seldom does one find a book as completely absorbing as this one. From the opening paragraph to the final sentence, its interest never lags. Told in first person, the book relates Sam's adventures as he provides for his needs for an entire year.

With an axe, a knife, a few extra clothes, and a little money in his pocket, Sam set out to try his luck back in his grandfather's country, a remote part of the Catskill Mountains and still a wilderness. It was the end of May. Life was not too rugged at first. He had time to establish himself before the winter storms arrived. A visit or two with a helpful librarian in the nearest village and a few persons, met by chance in the forest, were his only human contacts. But Sam did not lack for company. There was Frightful, a pet falcon, and the Baron, a weasel, that lived near his tree. Raccoons were frequent visitors. How Sam obtained his food, added to his clothing, kept warm and healthy even through the coldest weather, not only is full of interest but will enable the reader to add considerably to his knowledge of woodcraft.

The author has written several other children's books and shares several more with her naturalist husband, John George. Her own illustrator, the sketches show some of the food plants Sam gathered and how to make some of the devices he used for obtaining food—home-made fish hooks, rack for smoking meat.

This is a book for many ages. Any child old enough to enjoy camping trips will soon identify himself with Sam and become a part of this engaging bit of fiction.

Miss Treat has been on the staff of the National Audubon Society for many years. During her tenure at the New York City office, she developed much of the Society's educational materials for teachers and children, and in summer has taught at every one of the Audubon Camps. She is now Educational Director, Aullwood Audubon Center, 1000 Aullwood Road, Dayton 14, Ohio.

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### INSTRUCTIONS TO YOUNG ORNITHOLOGISTS: BIRD BIOLOGY

By J. D. Macdonald, Museum Press,  
London, England, 1959. 8¾ x 5¾ in.,  
136 pp. Illustrated. Indexed. \$3.75.

By Robert S. Lemmon

Most of the ornithological books originating in Britain are of only casual interest to the majority of America's amateur birders, primarily because of the wide differences between the bird species found on opposite sides of the Atlantic. The present volume, however, is a marked exception to this general rule. Indeed, it can be highly recommended to anyone, regardless of nationality, who is seeking an easy, dependable introduction to the biological factors in bird lives and their behavior everywhere.

The author is one of Britain's foremost ornithologists. For 20 years he has been a mainstay of the Department of Zoology in the British Museum, a position which has brought him in close touch with the bird population of many parts of the world. Yet the freshness

and clarity of his writing and his bits of quiet humor, give one the impression that he is still under the outdoor spell of the Scottish Highlands where his boyhood was spent. There are no unexplained technical terms in Mr. Macdonald's entire text. It is fascinating reading, from end to end.

A glance at the contents page of this "must" book gives an idea of its surprisingly broad scope. Here is the substance of some of the respective chapters: Preparation for Mating, Nests, Eggs, Family Care, Population, Annual Fluctuations, Food Supply, Population Control, Dispersal, Migration, Distribution, Habitats and Adaptations, Adaptations of Flight, and so on.

In its illustrations, this intriguing book for those who are "young in years or young in the study of birds" has 16 superb photographs, and numerous well-done explanatory drawings. Every one of them fully justifies its presence.

Mr. Lemmon has been an all-round naturalist since early boyhood. He is the author of eight issues of the Audubon-Doubleday Nature Program, 15 books, and numerous feature articles on natural history.

### NATURE AND MAN — Continued from page 139

off from distances, rain, and natural life, revolves in ever smaller orbits around allegedly precious bronzes, marbles, books, committees, laws, canvasses, and services. What began as opportunities for masterly individual achievements will end in mass strangulation of the individual.

What I have tried to say in suggesting a reorientation of man in nature is that where money and man are put immoderately before the whole of nature, the margin of safety for man himself is narrowed. One day, he will be caught short. Due to the taint of folly in our wisdom, a rot of our own making will surely undermine the foundations of man's termite civilization.

Natural history is a point of view, not a science. That is its salvation, and the source of its services to man. Human social life is no mere substitute for it. It is not a matter of money. Here is something that we cannot apply. It receives few subsidies from government, and hardly gets lip-service from many biology departments in colleges and universities. Yet, its prerequisites are those that any inspired amateur can bring to it. One may just see and appreciate, although few persons operate on so exalted a plane.

The lessons of natural history for mankind are not negative. The festering homocentrism that now leads

us to commit devastation toward both man and earth might possibly be alleviated by a love for nature that places man in perspective.

Love of nature is the supreme aim. The study of natural history, in the interest of that love, must be encouraged. Neither natural history nor naturalists, however, can be particularly dictated, legislated, or financed into existence. Uncontrolled nature is the mother of both of them.

The creation of naturalists, of individualists, is more difficult than the training of technicians. And less measurable. Perhaps colleges, geared to run on money from self-satisfied tycoons, and state universities, pacing in the dignified steps of politicians, are both poor places to expect any such palpable, immaterially good thing to be fostered.

Natural history in some way needs to remain in a state of perpetual amateurishness. The living world we see has to be, in a way not now clear, kept natural and rich; the individual man, in a manner yet to be discovered and practiced, must be left to explore, learn, and experience, as with a compelling passion. Naturalists only grow in such remarkable surroundings; I suspect that in this peculiar independence from extreme social coddling, they reflect a quality that is basic to healthy human beings. — THE END

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# Your CHILDREN

By Shirley Miller

"Train up a child in the way he should go; and when he is old he will not depart from it."

—Proverbs XXII

We might head this piece "Chapter Four—Adventures of Betty and Sam Davis, Jr." for it is the fourth appearance of these young conservationists in the pages of *Audubon Magazine*. Chapter One of these "adventures" (which take place on their farm in North Carolina appeared in "Your Children," May-June 1958 issue, when they were 13 and 11 years old, respectively. It spoke of the toll the severe winter had taken of the birds in their area. "We're afraid," they said, "that we have lost so many birds that the farmers may have to get rid of insects this year by using poison. We believe it would be cheaper and easier if the farmers would protect the birds that eat insects."

Mr. John K. Terres, the editor of this magazine, and an ardent champion of Proverbs XXII, has been in correspondence with Betty and Sam since 1956, when Mrs. O. Yelton of Connelly Springs, N.C., had written him of the unusual interest the children had in protecting birds and other wildlife on their farm. Through correspondence with Mr. Terres and other conservationists, the youngsters have learned more and more about the ecologic values of wildlife, and in the November-December 1958 issue of *Audubon Magazine*, a communication from them in the "Letters" column (we'll call it Chapter Two) reported, "We haven't used insecticides on our garden this year. Our bird friends have kept it free from insects. Grandmother had to dust her vegetables. She wanted to know how

we kept out insects and we told her to just feed the birds."

Chapter Three, in "Your Children," in our May-June 1959 issue, relayed the triumphant news of the \$250.00 prize they had won at the County Fair for their wildlife booth; of the Audubon Junior Club they had organized for neighboring farm children, (ranging in age from three to eleven years) and of their award on 4-H Club Recognition Day.

During a visit to their farm, Mr. Terres saw the pileated woodpecker Betty and Sam feed from a stump in their yard; the series of bird feeders they maintain; their insect-free garden; the voluminous file of correspondence carried on with naturalists and conservationists all over this continent and evidence on every hand of the influence these children are exerting in their community for conservation of wildlife—not the least of which is with their own parents.

From the field guides and other bird books they have collected, their mother has learned to identify the large number of species that their bird feeders attract. Stimulated by the children's enthusiasm, she applied for a federal bird-banding permit and on February 15 of this year, Mr. Terres received a jubilant letter from Betty:

"We just have to tell you the news. Mother received the permit this morning and they say the bands will come soon."

Close on the heels of this letter came more details:

"We can't begin to tell you how much fun we are having banding birds. We started last week. Mother waited until we got home from school to band the first bird. So far we have banded 35 field sparrows, 2 cardinals, 1 Bewick's

wren, 2 Carolina wrens, 8 chickadees, 1 brown thrasher, 10 bluebirds, 11 tufted titmice, 2 hermit thrushes, 2 towhees, 3 purple finches, 3 starlings, 2 juncos, 1 mockingbird, and 1 robin. Yesterday daddy woke mother just when it was getting light and said that Sam, Jr., was out in the garden. Sam had been watching from his window, and he saw a Carolina wren go in the trap. He was so excited he ran outdoors barefooted."

The next letter, a week later reported: "So far we have banded 21 different kinds of birds. The last one was a beautiful evening grosbeak. We banded him at our Audubon Junior Club meeting yesterday. All the children were so thrilled that we didn't think they would ever go home. Finally we told them we weren't going to band any more until morning, because we knew their parents would be real worried about them."

There's a message for all of us in Proverbs XXII. —THE END

## BIRD'S-EYE VIEW —

Continued from page 131

keys instead of four, and this meant he would have to give up the birds. Ornithology won out. Languages and music both demand the control of great masses of detail, so organized that they can be sorted out with unconscious speed. Griscom's achievements in these fields undoubtedly conditioned his way of thinking, and, in addition to his training as a first-rate botanist and museum ornithologist, helped make him the field-man he was.

The mind of a good field observer works just like a kaleidoscope, the gadget of our childhood, wherein loose fragments of colored glass fall quickly into symmetrical patterns. We see a bird. With an instinctive movement we center it in our glass. All the thousands of fragments we know about birds—locality, season, habitat, voice, actions, field marks, and likelihood of occurrence—flash across the mirrors of the mind and fall into place—and we have the name of our bird. Griscom's reactions in assembling these varied fragments were exceptionally fast.

Today when the young birder has seen all his local birds and has enjoyed the sport of it, he may go on to explore the further vistas of ornithology. The point of transition may be reached in his early twenties, or it may come later. Whereas it once

Continued on page 148

Betty and Sam Davis, Jr., recently photographed at Hayesville, North Carolina.





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Continued on page 148

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discovered a wide-mouthed burrow, cleverly hidden by the grasses topping the bank. The burrow plunged steeply downwards and was some 18 inches across at its flaring mouth, though narrowing a bit as it descended. It was far too wide for mink or muskrat or woodchuck. Further investigation showed a definite trail running from the den to the flattened grasses on the bank above. No tracks showed about the den, but we had had no recent rain and the earth was baked hard.

From that day on, I kept close watch and later, after a rain, found otter tracks in the mud at the den's entrance. Not a glimpse did I catch of the den's occupants, old or young. Yet I am sure a pair of otters chose our land as the home in which to raise their family.

I only wish I could have seen them. Otter family life is as rollicking an affair as is their habit of coasting. Both parents enter wholeheartedly into its spirit; though, until the pups are some three months old, the adult female keeps the male parent at a distance. Then, however, the little unit becomes a true family group. There is a great deal of exuberant play. The mother teaches the pups to swim, and the father helps to train them. As the summer wanes, the father goes his own way, but mother and pups are often together when the nip of winter is in the air.

It was in the summer of 1958 that I discovered the den, and all that winter the otters continued to include Rillside in their itinerary. In the summer of 1959, I found otter tracks from time to time in the mud at the river's brink. Only recently, I saw the familiar footprint etched in the earth below the den's entrance.

One day, towards the end of May, I was walking along a pebbly stretch at the water's edge. Below the clump of alders, I heard a scuffling sound in the alder thicket and turned just in time to glimpse the sleek, dark form of an otter running toward the sheltering roots of the elm. I attempted no pursuit. In fact, I moved away as fast as I could. To watch wild creatures unobtrusively is one thing; to frighten them by your sudden presence is quite another. I was content to know that I had seen an otter that had found haven on our land.

—THE END

## BIRD'S-EYE VIEW — Continued from page 146

might have taken a lifetime to learn to recognize all the birds, now it can be done in a crash program of a mere four or five years. The period of basic training has been shortened. Ludlow Griscom did much to make this possible, and in this way made one of his most significant contributions to the long science of ornithology. Even though his more formal publications on faunistics, system-

atics, and migration led to the highest honor in his profession, the presidency of the A.O.U., and though his distinguished efforts in the field of conservation made him the logical choice as Chairman of the Board of the National Audubon Society, the rank and file birder will always remember Ludlow Griscom as the great virtuoso of field identification.

—THE END

## LUTRA, THE ELUSIVE — Continued from page 135

otter tracks in the mud along the river. Then I came upon an area of flattened grasses on top of the high bank, well above the rocks. It was a circular patch some six feet in diameter, and a grassy trail led from it downwards to the boulders. I knew that otters had rolling places that they visited regularly, but, even so, I was hesitant to attribute this flattened area to my playful riverside

neighbors. A passing dog might have rolled there, but no dog would be likely to roll day after day in the same spot. Moreover, there was that pathway to the river.

Then, one afternoon in late summer, my speculations were rewarded. It was a hot day and I decided to sit under an elm on the bank with my legs dangling over the edge. It was a lucky place to have chosen, for I

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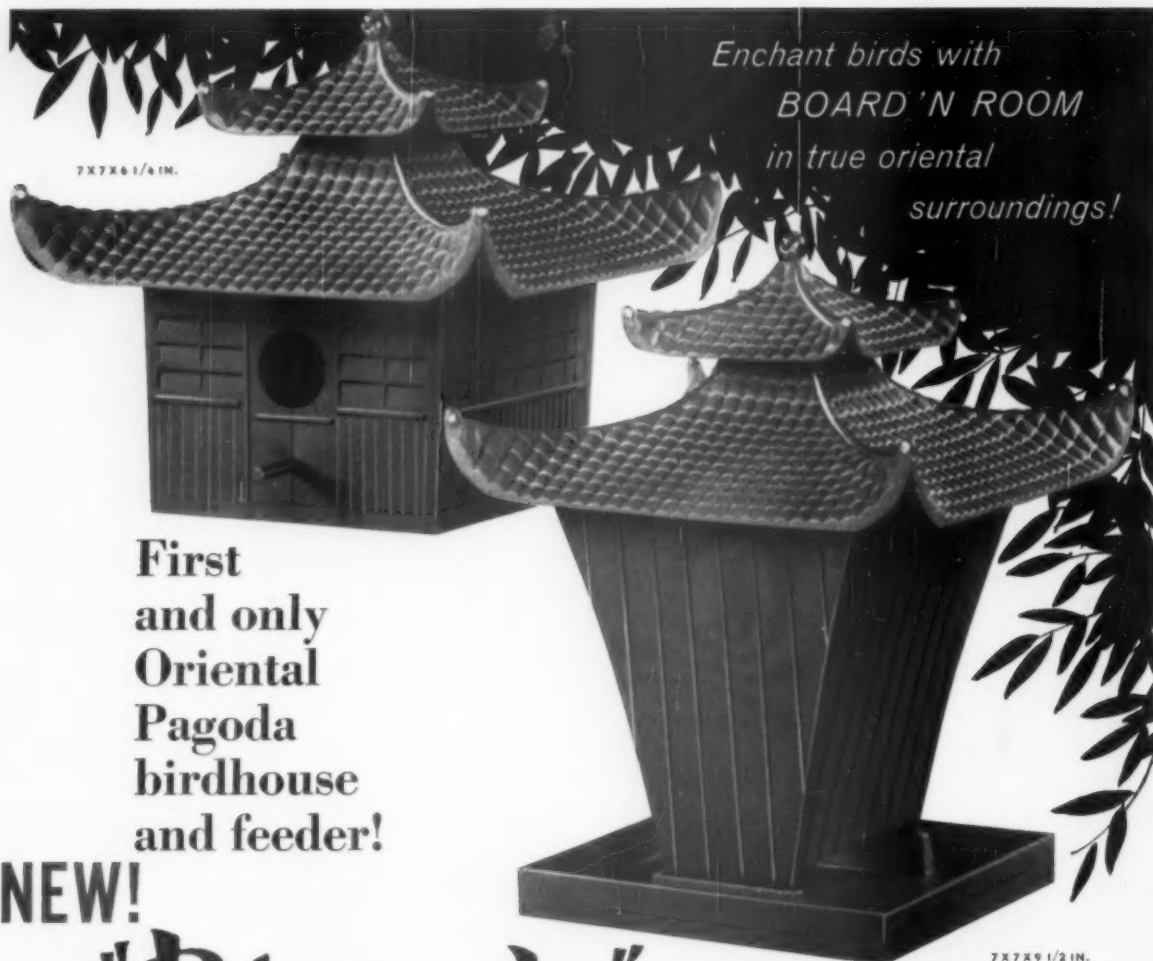
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